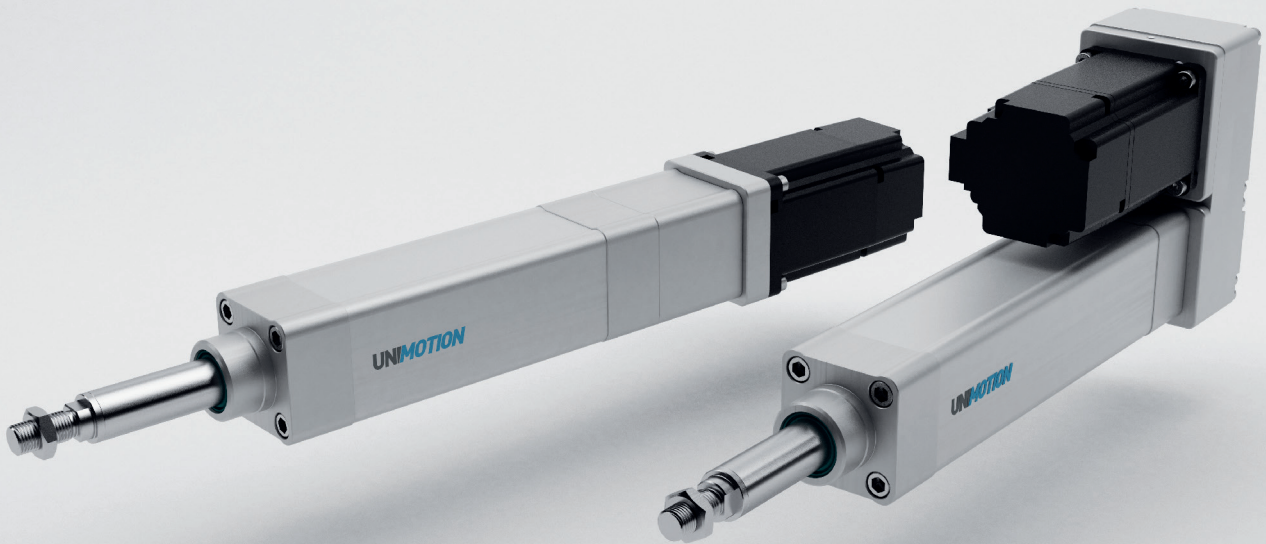


UNIMOTION

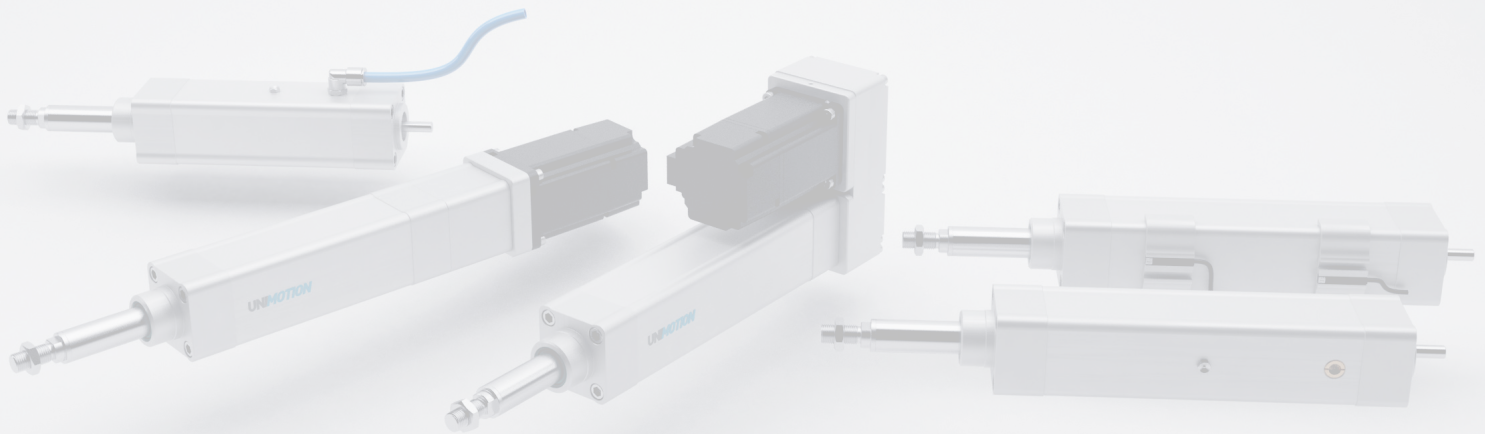


PNCE
ELECTRIC CYLINDER



ISO
15552

IP65



INDEX

| | |
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| Characteristics | 2 |
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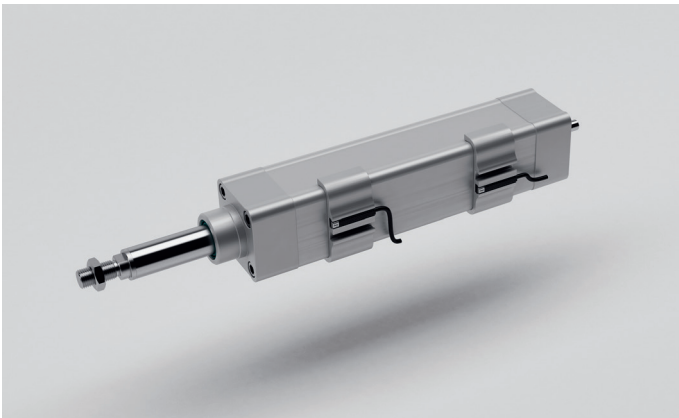
CHARACTERISTICS

The PNCE are electric cylinders with a precision ball screw drive. The electric cylinder is based on the standard ISO 15552. Its outer design and dimensions are very similar to pneumatic cylinders. High performance features such as, high speeds, good positioning accuracy and high repeatability are ensured through a precision ball screw with reduced backlash (preload on request) of the ball nut and non-rotating piston rod. For a long service life the re-lubrication can be done through a lubrication nipple. The design with its smooth surfaces enables easy cleaning of the cylinder. In combination with a lubricant class H1 it is also suitable for food & beverage applications. It can be additionally equipped with switches and ISO standard accessories.

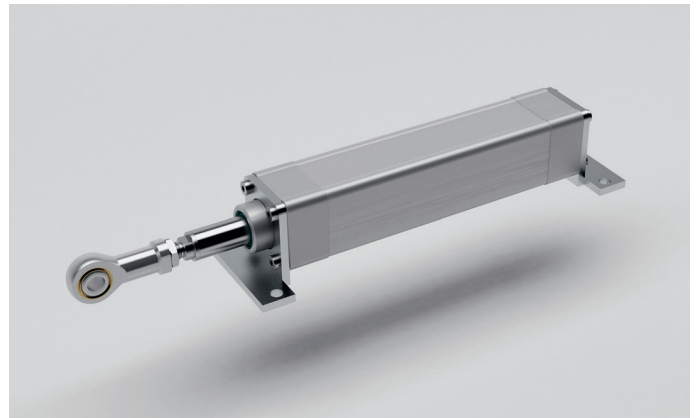
The excellent sealing of the components in the cylinder ensures an IP65 protection class and protects the interior of the cylinder from dust, water and other contaminants. Version IP65CR also offers a high corrosion resistance in harsh environments.



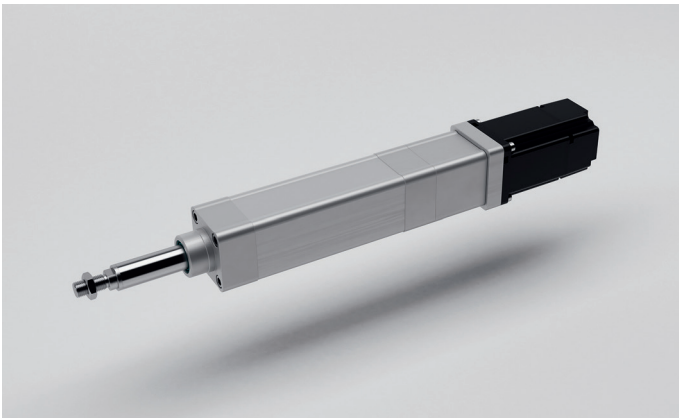
The aluminium profiles are manufactured according to the medium EN 12020-2 standard



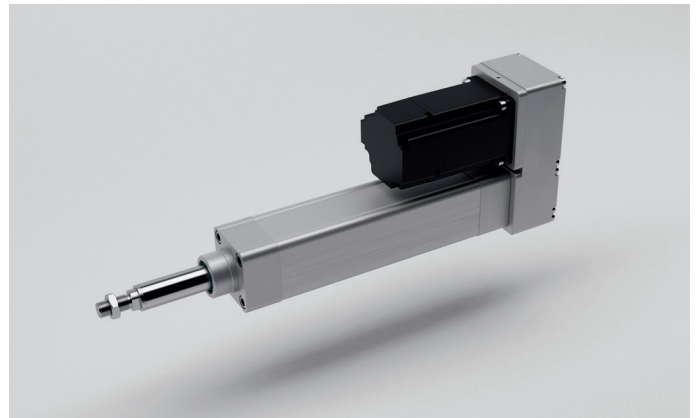
Sensor holder



ISO standard accessories



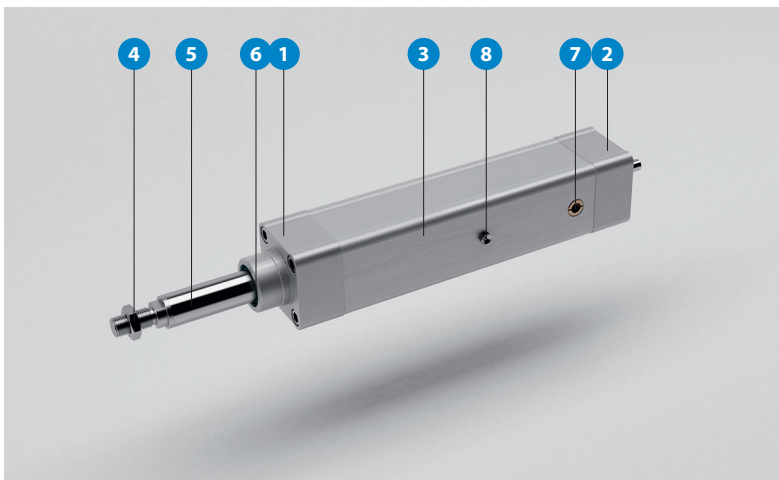
Motor adapter with coupling (IP65)



Motor side drive (IP65)

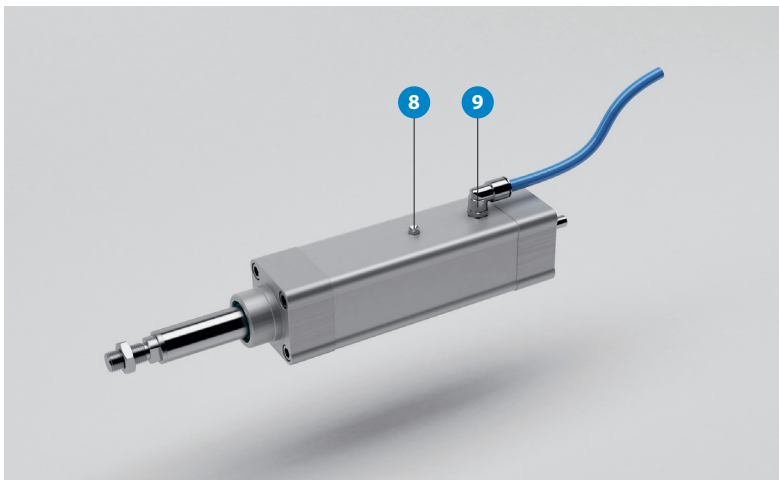
STRUCTURAL DESIGN

• Standard version (S)*



- 1 – Front cap
- 2 – Drive cap
- 3 – Smooth cylinder profile
- 4 – Hex nut
- 5 – Piston rod (stainless steel) with an anti-rotation device
- 6 – Piston rod seal
- 7 – Pressure compensation
- 8 – Lubrication nipple

* IP40 protection class



- 8 – Lubrication nipple
- 9 – Connection for pressure compensation

• IP65 protection class (IP65)



The appropriate sealing of the external parts ensures the electric cylinder the IP65 protection class. The IP65 protection class of the electric cylinder fulfils the specifications to IEC 60 529. The connection for pressure compensation in the cylinder profile ensures the exchange of air between the interior of the cylinder and the environment. This prevents the occurrence of excess pressure or negative pressure inside the electric cylinder. It also protects the interior of the cylinder from the external media like dust and water.

• IP65 protection class with high corrosion resistance (IP65CR)



It offers high corrosion resistance in harsh environments. The version IP65CR includes all the features of the electric cylinder version IP65. In addition to ensuring high corrosion resistance all the external parts are corrosion resistant (e.g. the connection for pressure compensation, lubrication nipple, and the connection elements are made of stainless steel). More information about materials is available upon request in the extended material information list.

• For applications in the food industry (FI)



The version FI includes all the features of the electric cylinder version IP65CR. It is upgraded by materials suitable for some applications in the food industry. The cylinder is greased with a lubricant class NSF H1. The design with the smooth surfaces of the aluminium profile enables its quick and effective cleaning. During the cleaning the sealing air can be applied to the connection for pressure compensation. The use for the food & beverage industry is limited by the materials of the electric cylinder. More information about materials is available upon request in the extended material information list.

HOW TO ORDER

PNCE - 40 - BS - 1610 - 200 - S - F - E20

Series: _____

PNCE

Size: _____

- 32
- 40
- 50
- 63
- 80
- 100

Screw type: _____

- BS: ball screw

Ball screw: _____

- PNCE 32: Ø12x5, Ø12x10
- PNCE 40: Ø16x5, Ø16x10, Ø16x16
- PNCE 50: Ø20x5, Ø20x10, Ø20x20, Ø20x50
- PNCE 63: Ø25x5, Ø25x10, Ø25x25
- PNCE 80: Ø32x5, Ø32x10, Ø32x20, Ø32x32
- PNCE 100: Ø40x5, Ø40x10, Ø40x20, Ø40x40

Absolute stroke [mm]: _____

Absolute stroke = Effective stroke + 2 × Safety stroke

Versions: _____

- S: Standard version
- IP65: IP65 protection class
- IP65CR: IP65 protection class with high corrosion resistance
- FI: For applications in the food industry (check the material information)

Option 1: _____

- Leave blank: standard
- F: female thread on the piston rod

Option 2: _____

- Extended piston rod E [mm]

TECHNICAL DATA

General technical data for the PNCE series

| PNCE | Ball screw | Dynamic * load capacity | Maximum axial load ** | Maximum drive torque | Maximum travel speed *** | Max. rotational speed | No load torque | Minimum stroke | Maximum stroke | Axial backlash (BS) | Maximum acceleration |
|------|------------|-------------------------|-----------------------|----------------------|--------------------------|---------------------------------------|---------------------|-----------------------|-----------------------|---------------------|----------------------|
| | d x l [mm] | C [N] | F _{max} [N] | M _p [Nm] | v _{max} [m/s] | n _{max} [min ⁻¹] | M ₀ [Nm] | s _{min} [mm] | s _{max} [mm] | [mm] | [m/s ²] |
| 32 | 12x5 | 5000 | 2540 | 2,2 | 0,48 | 5800 | 0,10 | 30 | 800 | < 0,02 | 20 |
| | 12x10 | 3800 | 1270 | | 0,97 | | 0,15 | 30 | | | |
| 40 | 16x5 | 13150 | 6020 | 5,3 | 0,35 | 4200 | 0,15 | 40 | 900 | < 0,02 | 20 |
| | 16x10 | 11550 | 3010 | | 0,70 | | 0,20 | 35 | | | |
| | 16x16 | 8170 | 1880 | | 1,12 | | 0,25 | 35 | | | |
| 50 | 20x5 | 14800 | 14600 | 12,9 | 0,28 | 3300 | 0,30 | 50 | 1000 | < 0,02 | 20 |
| | 20x10 | 15900 | 7830 | 13,9 | 0,55 | | 0,35 | 55 | | | |
| | 20x20 | 16250 | 3900 | | 1,10 | 0,40 | 50 | | | | |
| | 20x50 | 13000 | 1560 | 2,5 | 3000 | 0,50 | 30 | | | | |
| 63 | 25x5 | 16700 | 16500 | 14,6 | 0,23 | 2700 | 0,50 | 40 | 1200 | < 0,02 | 20 |
| | 25x10 | 15800 | 15800 | 28,0 | 0,45 | | 0,55 | 40 | | | |
| | 25x25 | 16700 | 7940 | 35,1 | 1,13 | | 0,65 | 30 | | | |
| 80 | 32x5 | 18850 | 18850 | 16,7 | 0,18 | 2150 | 0,65 | 60 | 1500 | < 0,02 | 20 |
| | 32x10 | 37000 | 25000 | 44,2 | 0,50 | 3000 | 0,70 | 60 | | | |
| | 32x20 | 22950 | 17160 | 60,7 | 1,00 | | 0,75 | 70 | | | |
| | 32x32 | 15500 | 10725 | 60,7 | 1,60 | | 0,90 | 70 | | | |
| 100 | 40x5 | 23800 | 23800 | 21,0 | 0,18 | 2200 | 1,40 | 45 | 1500 | < 0,02 | 20 |
| | 40x10 | 38000 | 29000 | 51,3 | 0,37 | | 1,55 | 55 | | | |
| | 40x20 | 33300 | 29000 | 102,6 | 0,73 | | 1,70 | 65 | | | |
| | 40x40 | 35000 | 22980 | 162,6 | 1,47 | | 2,00 | 80 | | | |

* Dynamic load capacity of ball screw drive. This value is the basis for calculating the service life.

** When considering service life, see page 15. This value needs to be considered when using the piston rod or mounting attachments' accessories.

*** Maximum travel speed depends of the absolute stroke of the PNCE, see diagrams on page 11.

Operating conditions

| | |
|-----------------------|-------------|
| Operating temperature | 0°C ~ +60°C |
| Protection class | IP40, IP65 |
| Duty cycle | 100 % |

i Recommended values of loads:

All the data of the dynamic load capacities (ball screw drive) stated in the upper table are theoretical without considering any safety factor. The safety factor depends on the application and its requested safety and service life.

We recommend a minimum safety factor $f_s = 5,0$, where f_s is defined as $f_s = C / F_m$.

See page 15 for information on how the applied mean axial load F_m affects the service life.

Mass and mass moment of inertia

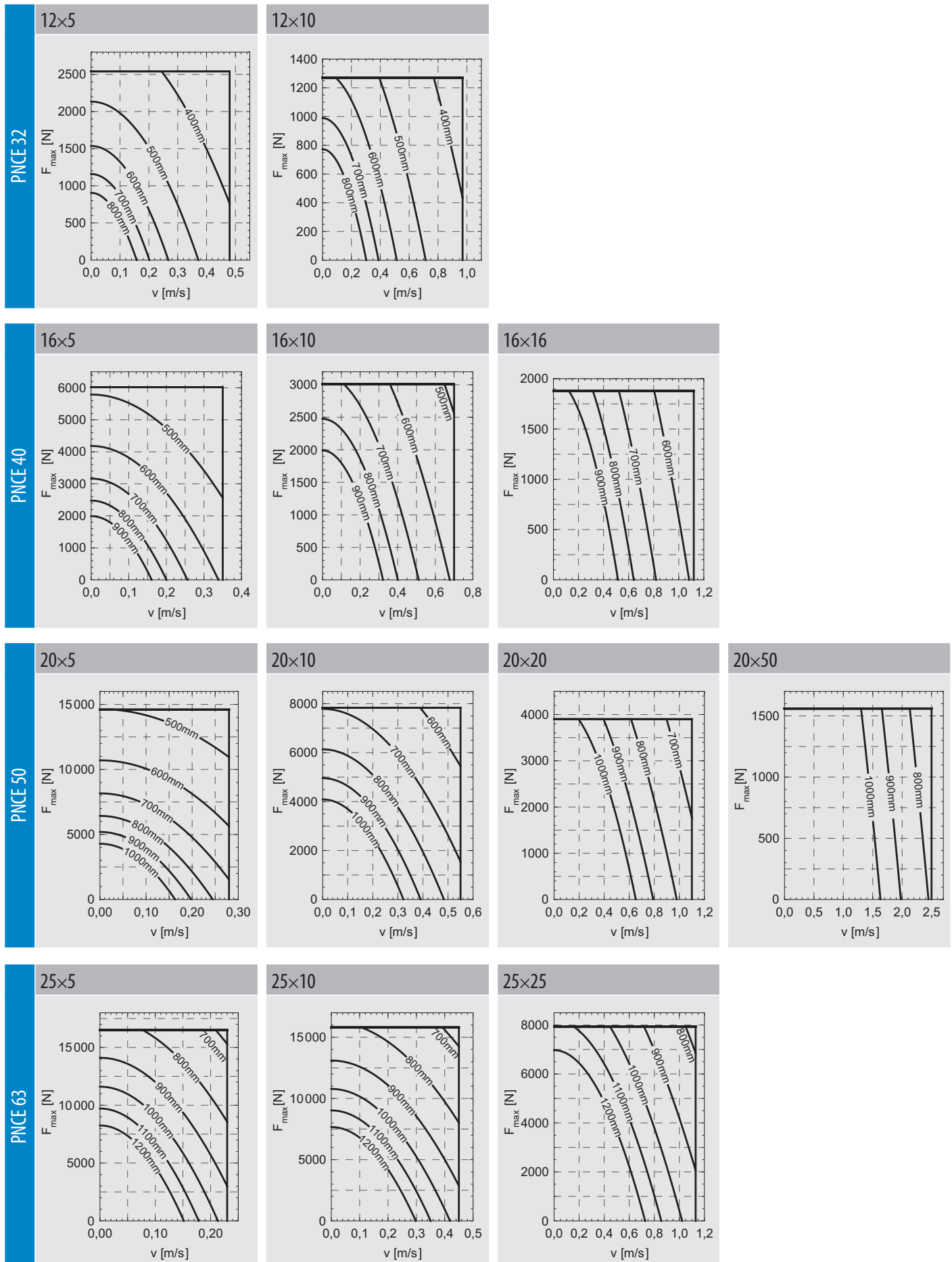
| PNCE | Ball screw | Moved mass * | Mass of the electric cylinder | Mass moment of inertia |
|------|------------|---------------------------------------|---|--|
| | d×l [mm] | m _m [kg] | m _{PNCE} [kg] | J _{PNCE} [10 ⁻⁶ kg m ²] |
| 32 | 12×5 | 0,32 + 0,0010 × (Absolute stroke + E) | 1,10 + 0,0043 × Absolute stroke + 0,0010 × E | 2,15 + 0,0128 × Absolute stroke + 0,0006 × E + 0,6333 × m _{load} |
| | 12×10 | | | 2,75 + 0,0147 × Absolute stroke + 0,0025 × E + 2,5330 × m _{load} |
| 40 | 16×5 | 0,44 + 0,0007 × (Absolute stroke + E) | 1,45 + 0,0051 × Absolute stroke + 0,0007 × E | 4,50 + 0,0395 × Absolute stroke + 0,0004 × E + 0,6333 × m _{load} |
| | 16×10 | | | 5,35 + 0,0408 × Absolute stroke + 0,0018 × E + 2,5330 × m _{load} |
| | 16×16 | | | 7,10 + 0,0436 × Absolute stroke + 0,0046 × E + 6,4846 × m _{load} |
| 50 | 20×5 | 0,95 + 0,0012 × (Absolute stroke + E) | 2,50 + 0,0073 × Absolute stroke + 0,0012 × E | 17,75 + 0,0817 × Absolute stroke + 0,0007 × E + 0,6333 × m _{load} |
| | 20×10 | | | 19,55 + 0,0839 × Absolute stroke + 0,0030 × E + 2,5330 × m _{load} |
| | 20×20 | | | 26,75 + 0,0928 × Absolute stroke + 0,0118 × E + 10,1321 × m _{load} |
| | 20×50 | | | 73,80 + 0,1549 × Absolute stroke + 0,0740 × E + 63,3257 × m _{load} |
| 63 | 25×5 | 1,00 + 0,0011 × (Absolute stroke + E) | 3,05 + 0,0097 × Absolute stroke + 0,0011 × E | 32,55 + 0,2358 × Absolute stroke + 0,0007 × E + 0,6333 × m _{load} |
| | 25×10 | | | 34,45 + 0,2378 × Absolute stroke + 0,0028 × E + 2,5330 × m _{load} |
| | 25×25 | | | 47,30 + 0,2523 × Absolute stroke + 0,0172 × E + 15,8314 × m _{load} |
| 80 | 32×5 | 2,15 + 0,0028 × (Absolute stroke + E) | 6,48 + 0,0156 × Absolute stroke + 0,0028 × E | 118,14 + 0,6514 × Absolute stroke + 0,0018 × E + 0,6333 × m _{load} |
| | 32×10 | | | 122,23 + 0,6567 × Absolute stroke + 0,0071 × E + 2,5330 × m _{load} |
| | 32×20 | | | 138,60 + 0,6781 × Absolute stroke + 0,0285 × E + 10,1321 × m _{load} |
| | 32×32 | | | 172,65 + 0,7227 × Absolute stroke + 0,0731 × E + 25,9382 × m _{load} |
| 100 | 40×5 | 3,21 + 0,0047 × (Absolute stroke + E) | 10,12 + 0,0245 × Absolute stroke + 0,0047 × E | 342,17 + 1,6613 × Absolute stroke + 0,0030 × E + 0,6333 × m _{load} |
| | 40×10 | | | 348,27 + 1,6701 × Absolute stroke + 0,0118 × E + 2,5330 × m _{load} |
| | 40×20 | | | 372,67 + 1,7056 × Absolute stroke + 0,0473 × E + 10,1321 × m _{load} |
| | 40×40 | | | 483,41 + 1,8476 × Absolute stroke + 0,1893 × E + 40,5285 × m _{load} |

* The moved mass is already considered in the equation for calculating the mass of the electric cylinder m_{PNCE} and the mass moment of inertia J_{PNCE}. The moved mass includes the mass of the piston rod with the internal anti-rotation device and ball nut.

| | | |
|-------------------|--------------------------|------|
| m _{load} | Applied mass to be moved | [kg] |
| E | Extended piston rod | [mm] |
| Absolute stroke | | [mm] |

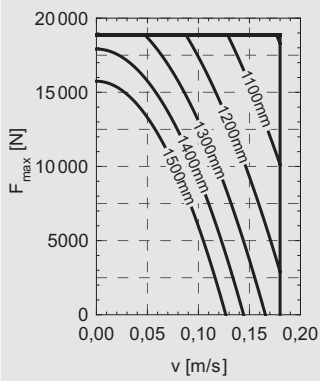
Maximum axial loading as a function of the travel speed for different values of absolute stroke

(F_{max} - v curves)

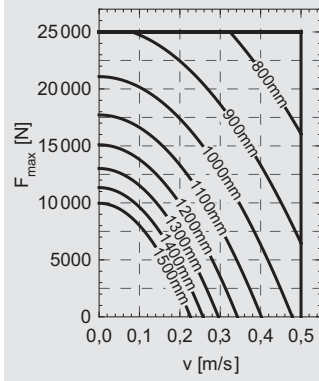


PNCE 80

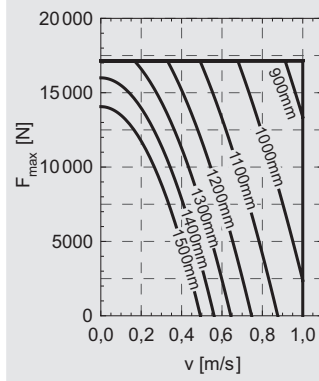
32x5



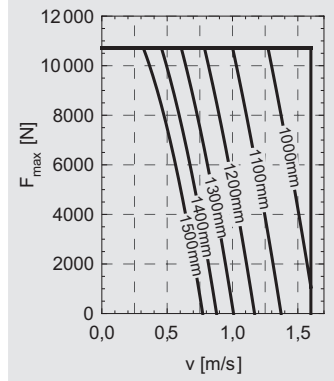
32x10



32x20

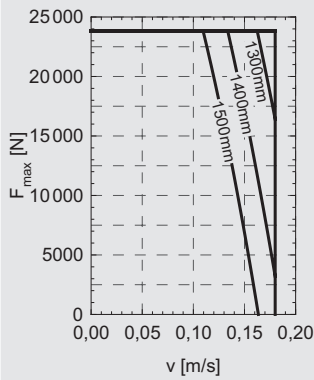


32x32

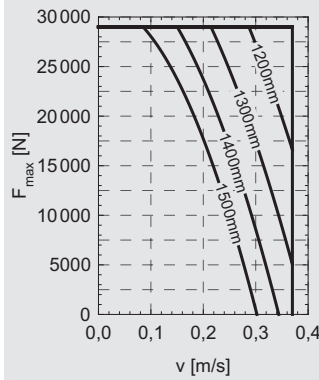


PNCE 100

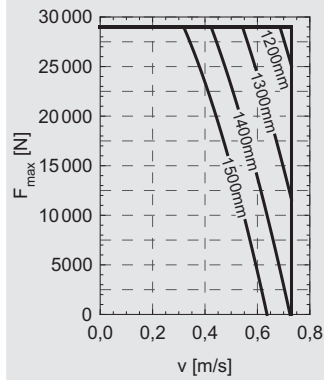
40x5



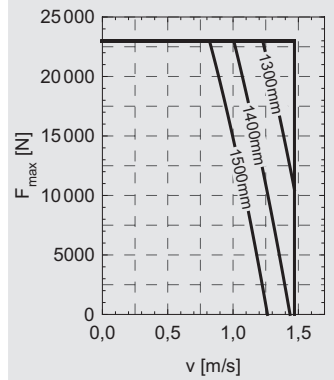
40x10



40x20



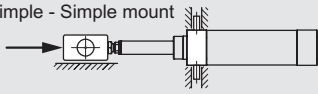
40x40



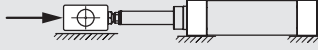
Maximum axial loading as a function of the absolute stroke (F_{max} - absolute stroke curves)

Schematically presented mounting cases

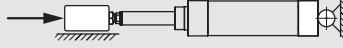
Simple - Simple mount



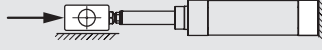
Simple - Fixed mount



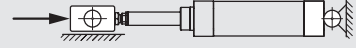
Fixed - Simple mount



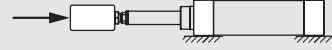
Simple - Fixed mount



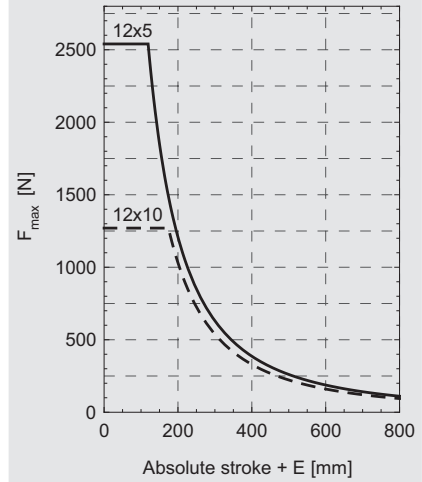
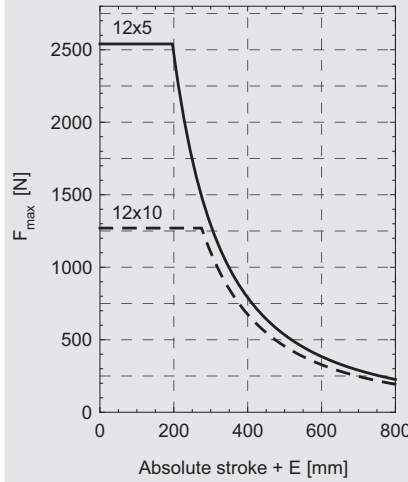
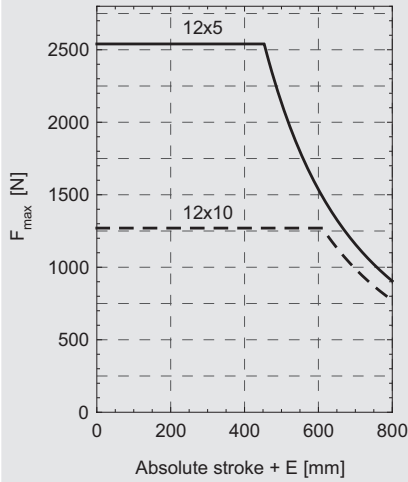
Simple - Simple mount



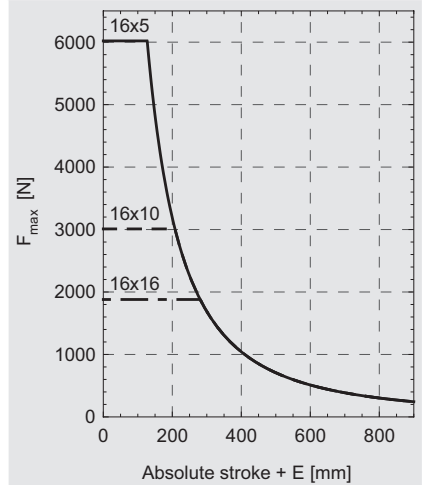
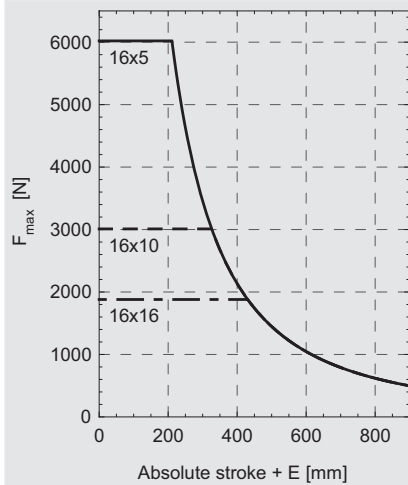
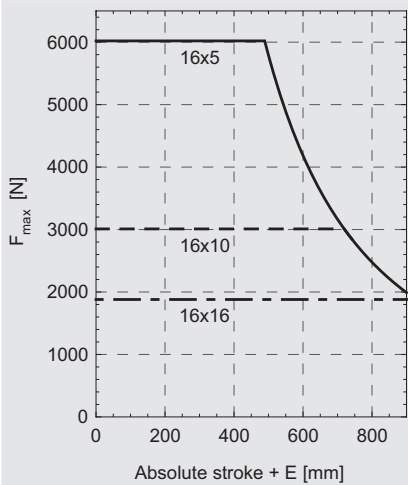
Free - Fixed mount



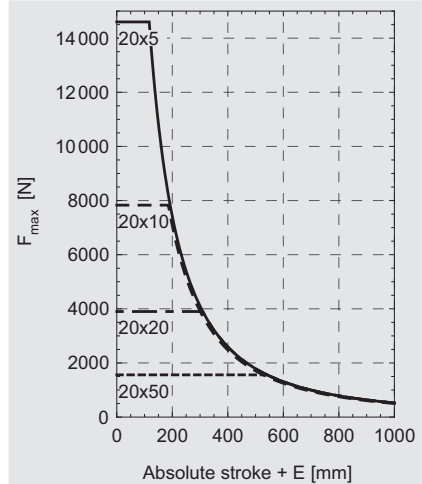
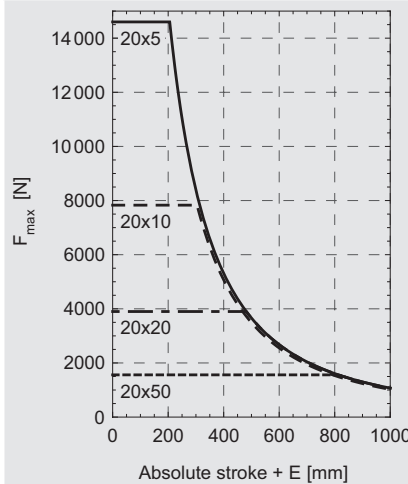
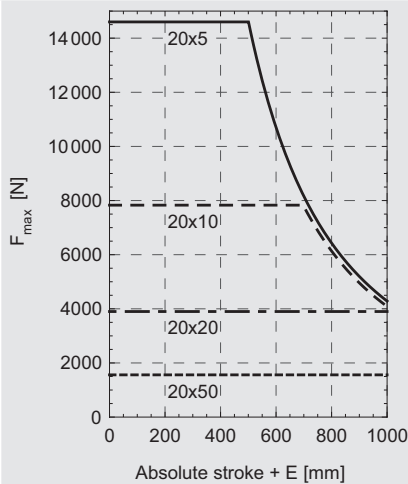
PNCE 32



PNCE 40



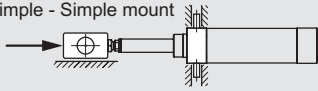
PNCE 50



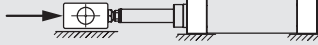
E Extended piston rod [mm]

Schematically presented mounting cases

Simple - Simple mount



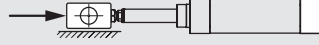
Simple - Fixed mount



Fixed - Simple mount



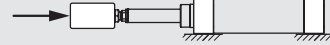
Simple - Fixed mount



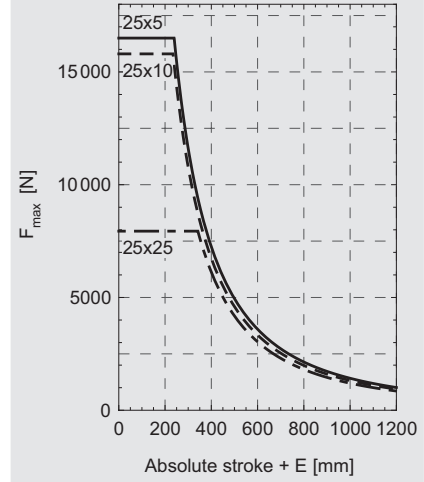
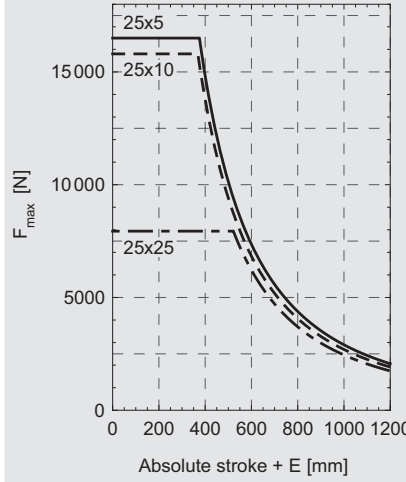
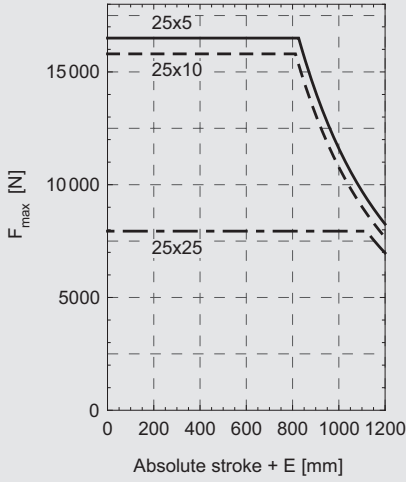
Simple - Simple mount



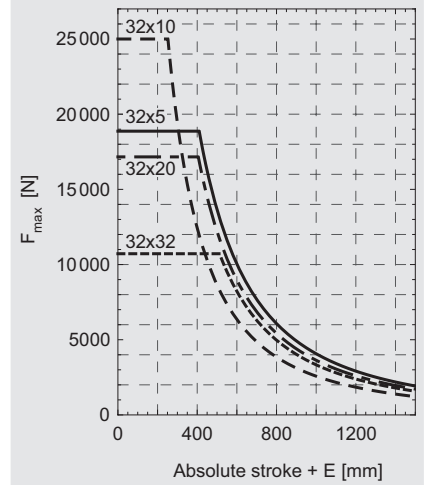
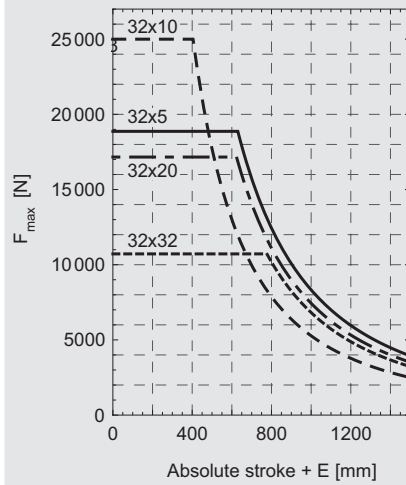
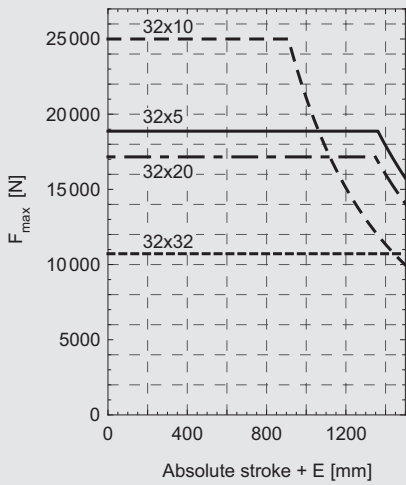
Free - Fixed mount



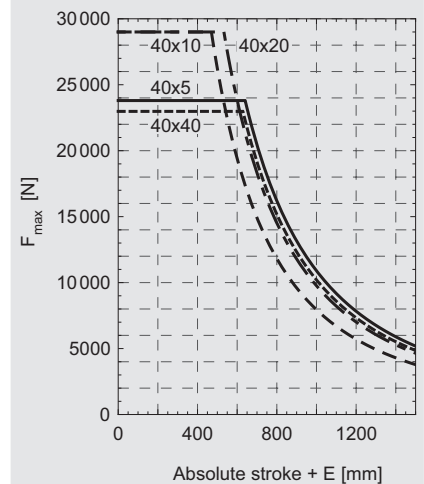
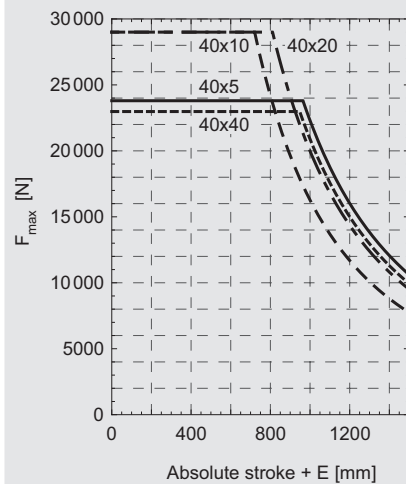
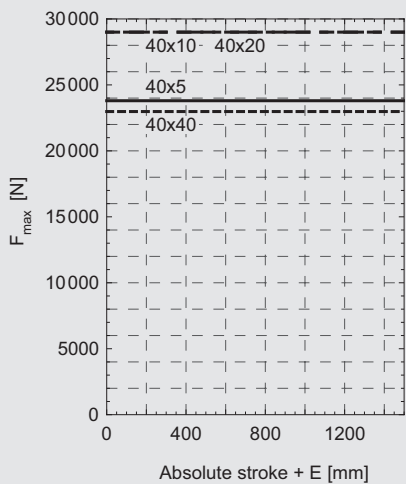
PNCE 63



PNCE 80

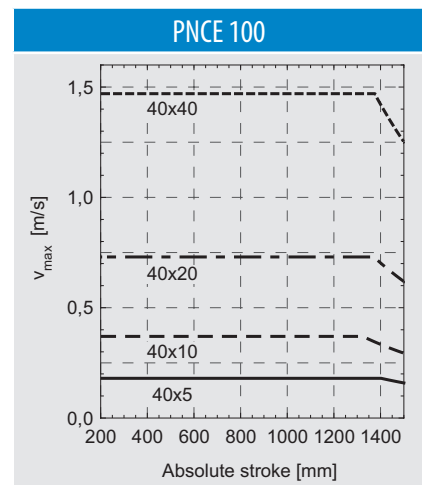
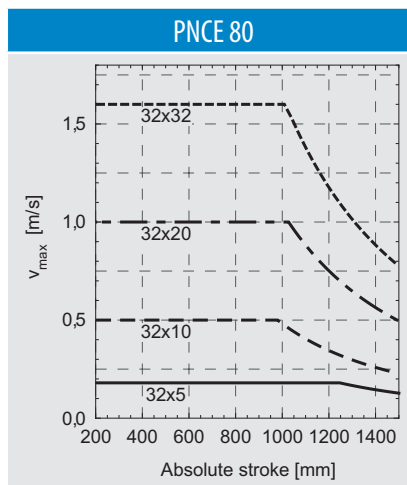
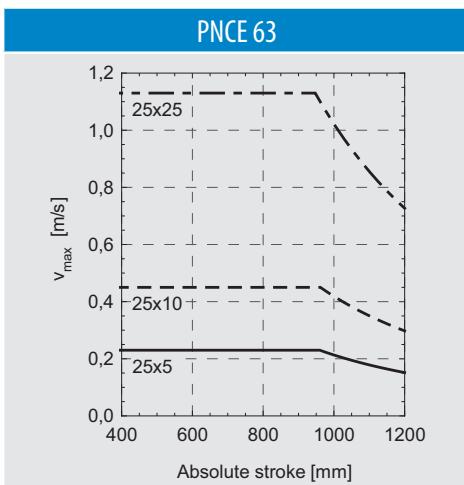
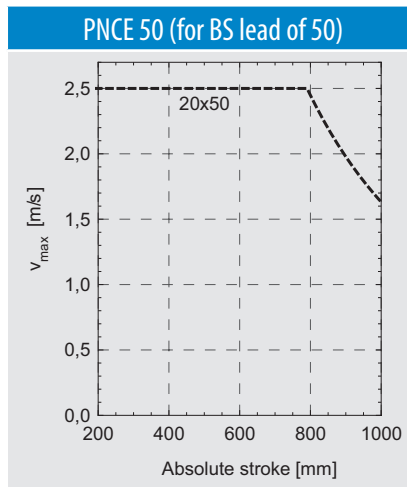
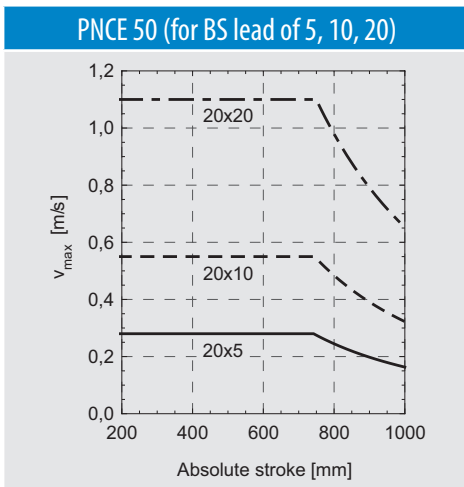
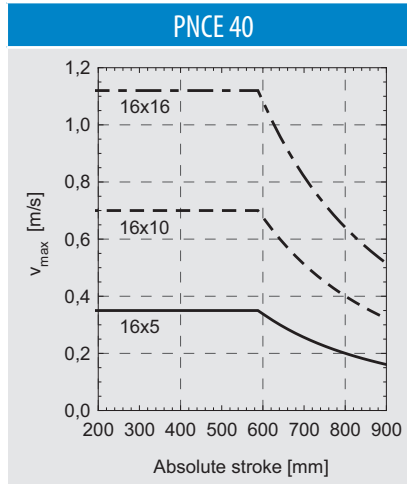
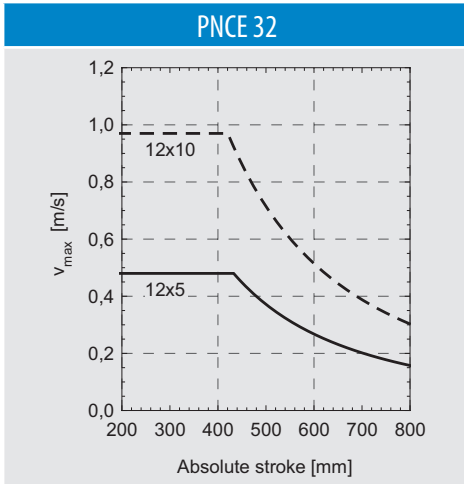


PNCE 100



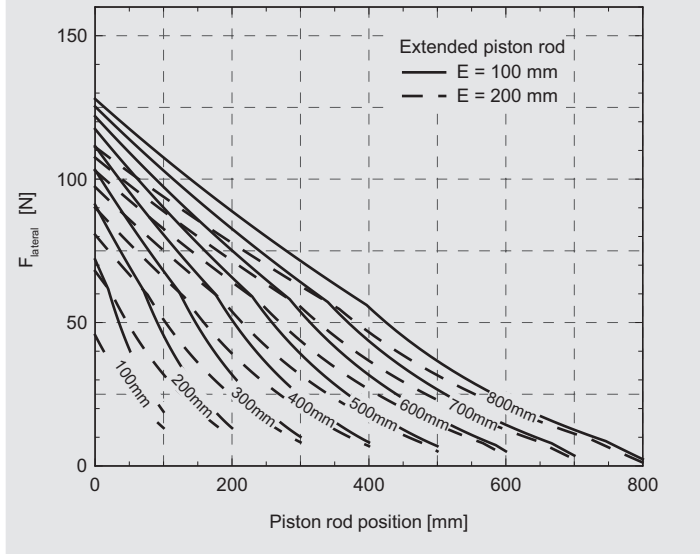
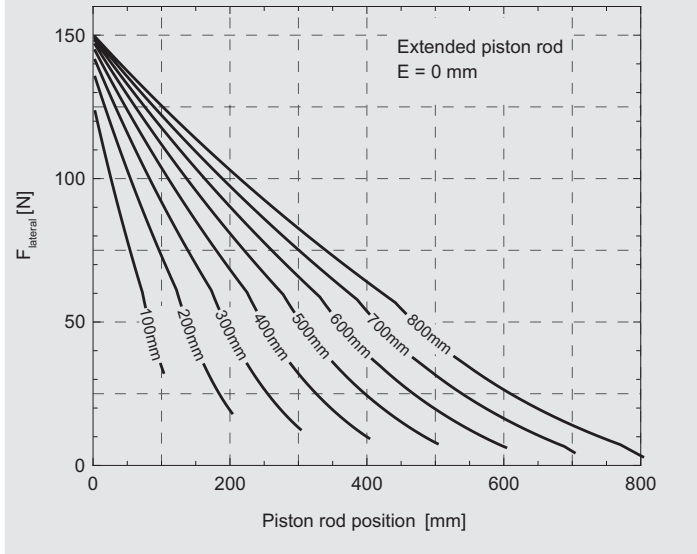
E Extended piston rod [mm]

Maximum travel speed as a function of the absolute stroke (v_{max} - absolute stroke curves)

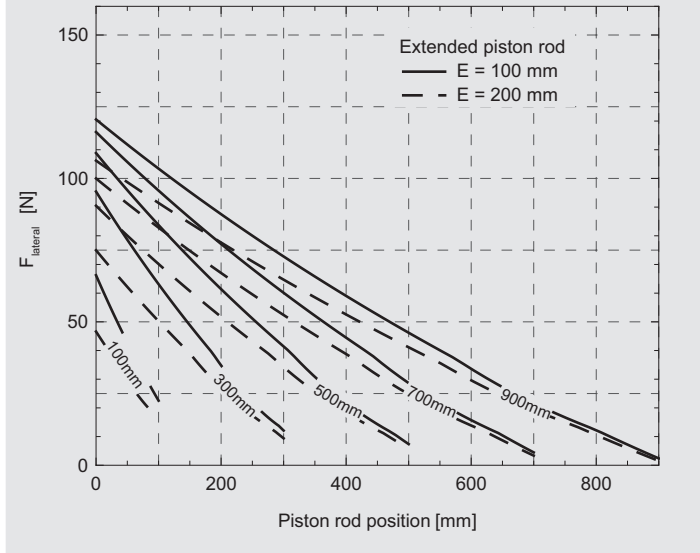
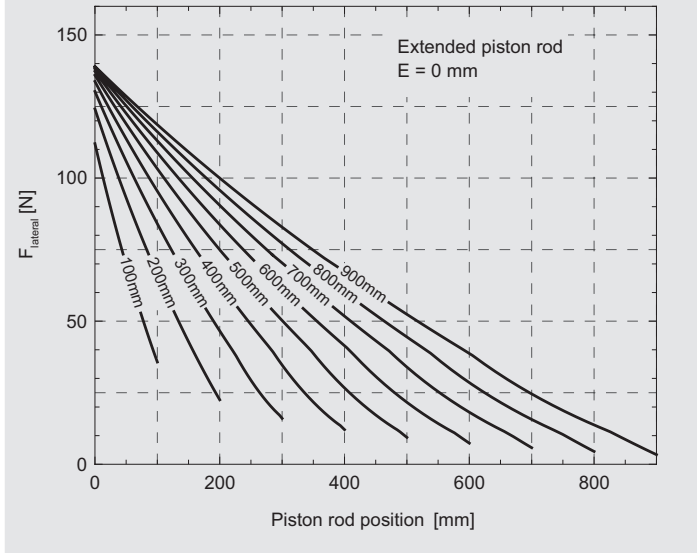


Maximum lateral loading as a function of the piston rod position for different values of the absolute stroke ($F_{lateral}$ - piston rod position curves)

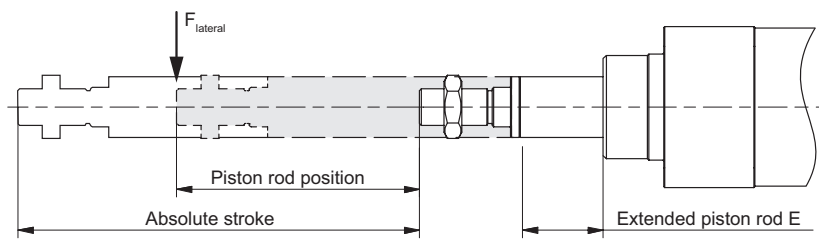
PNCE 32



PNCE 40

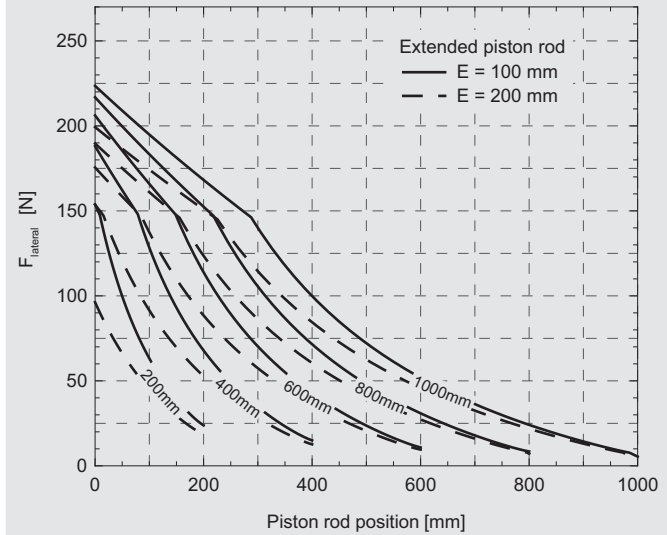
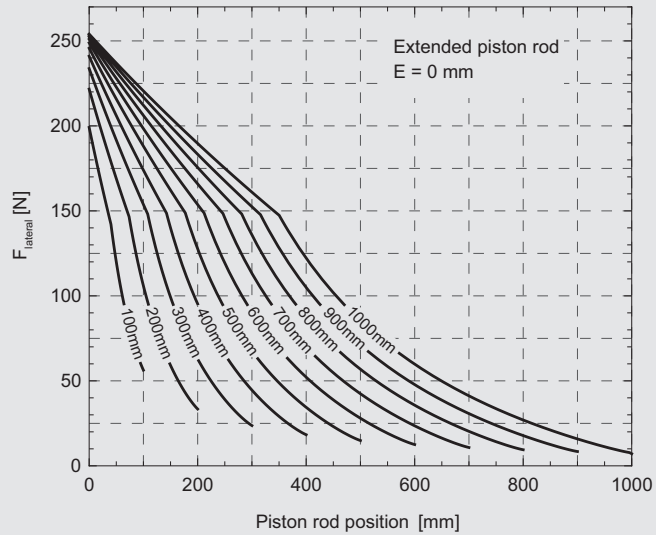


Values on the curves represent the absolute stroke

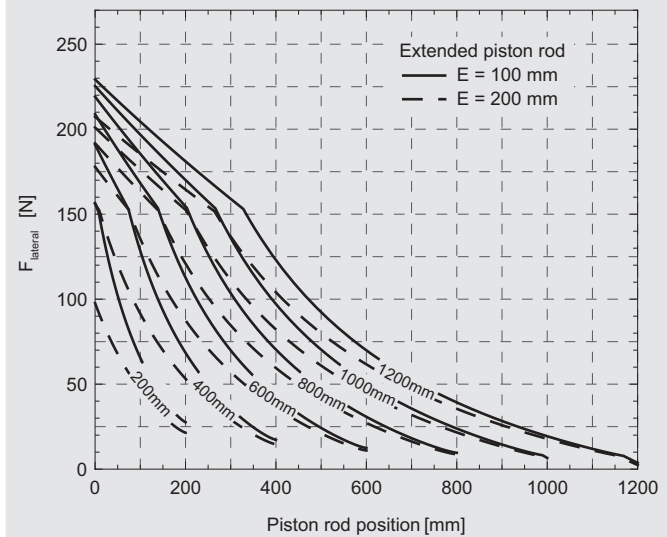
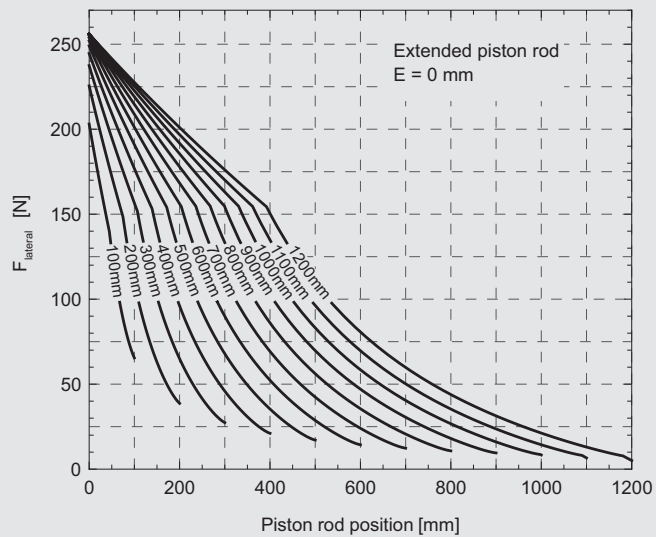


Diagrams taking into consideration a travel speed of 0,5 m/s and an axial load of $F_{max}/4$.

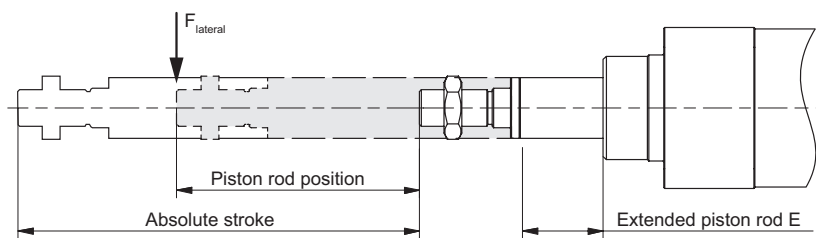
PNCE 50



PNCE 63

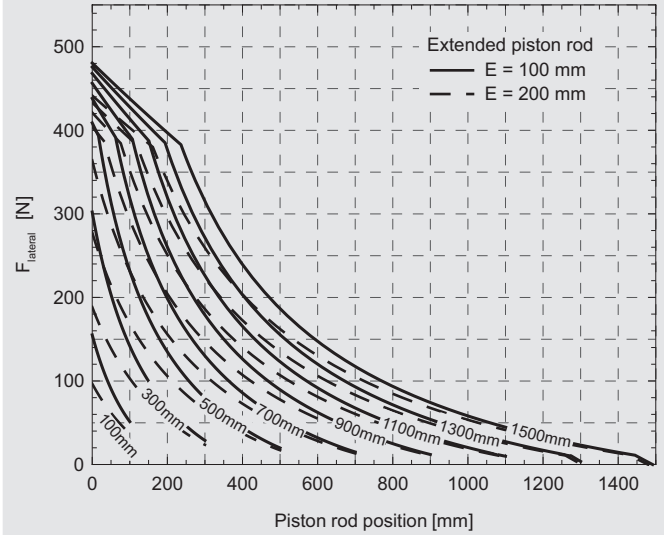
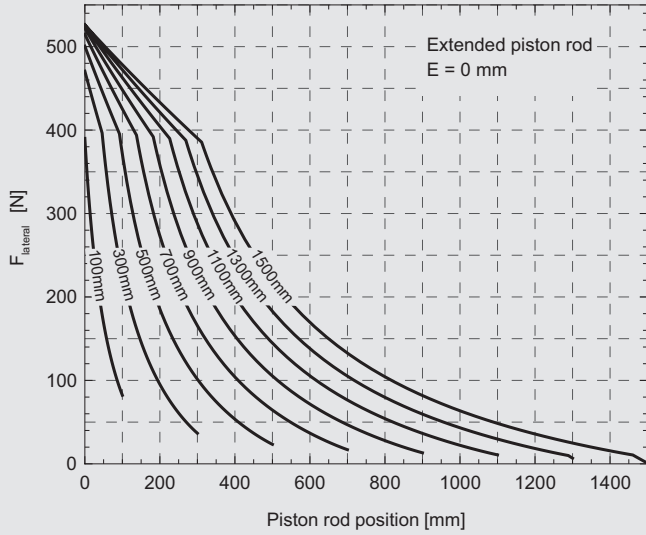


Values on the curves represent the absolute stroke

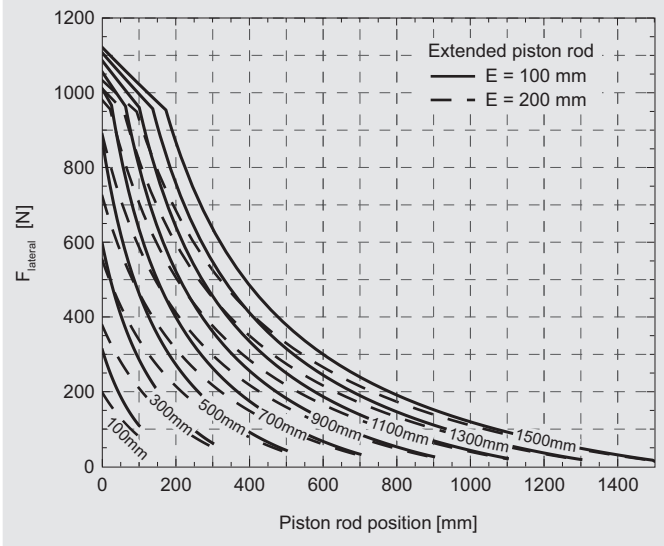
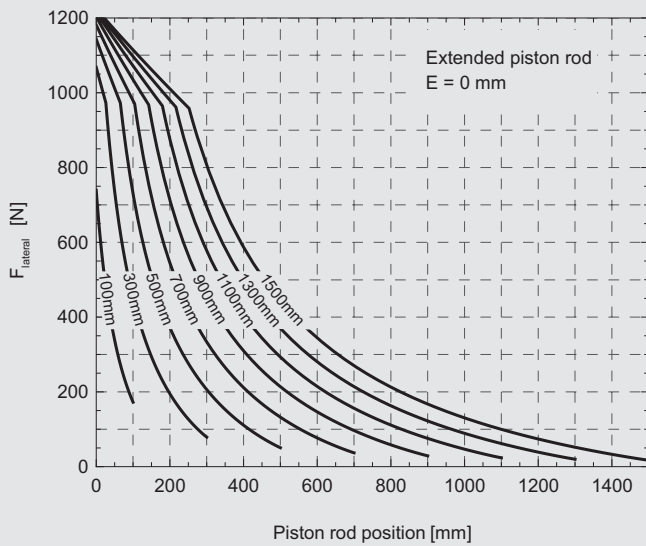


Diagrams taking into consideration a travel speed of 0,5 m/s and an axial load of $F_{max}/4$.

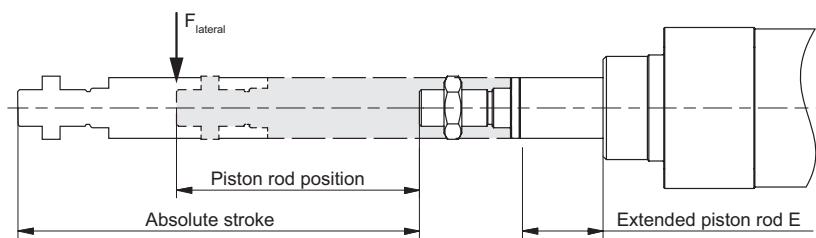
PNCE 80



PNCE 100

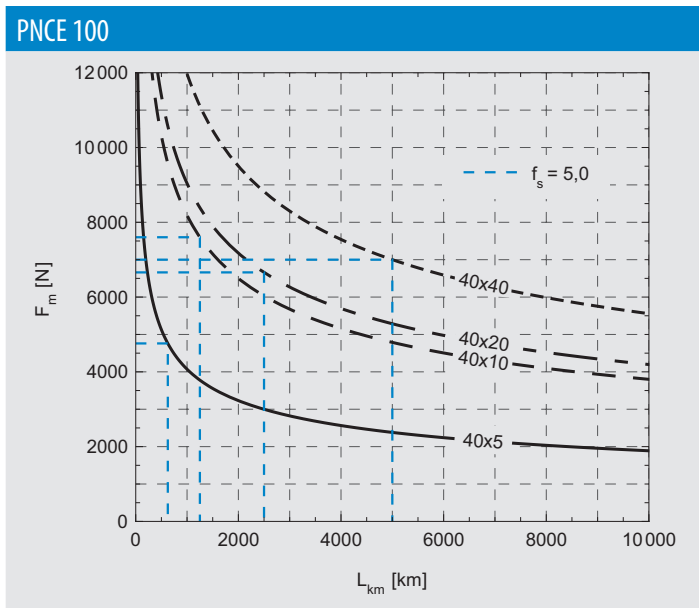
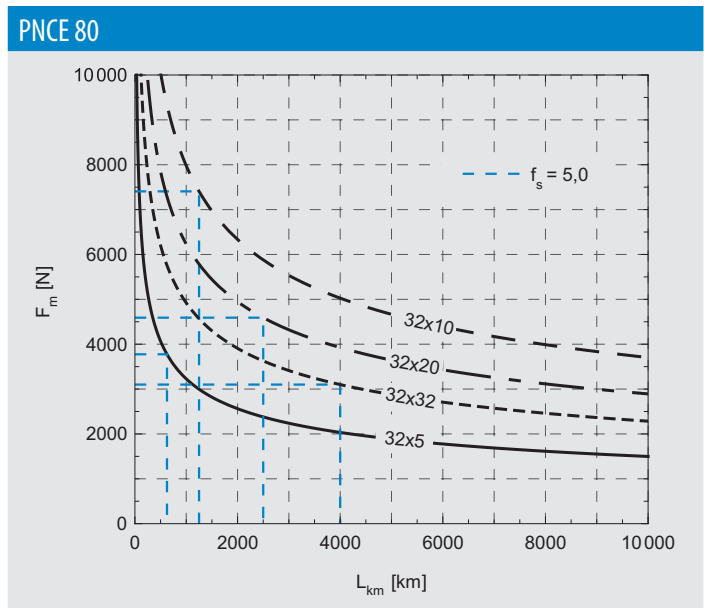
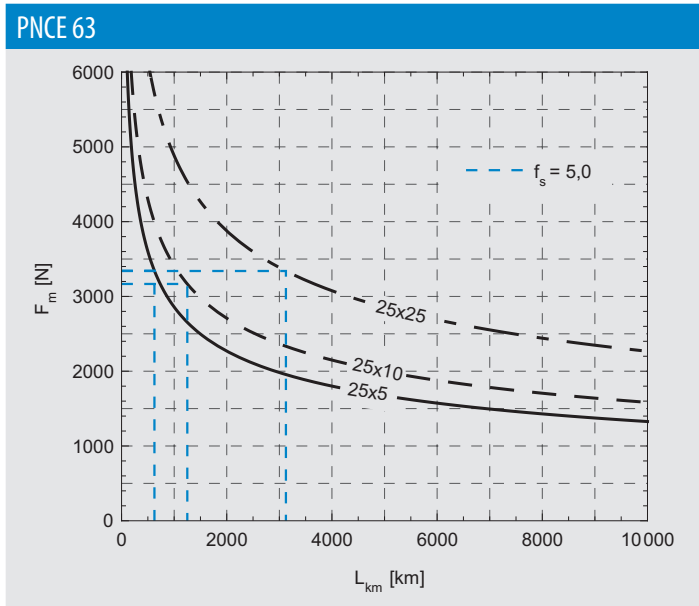
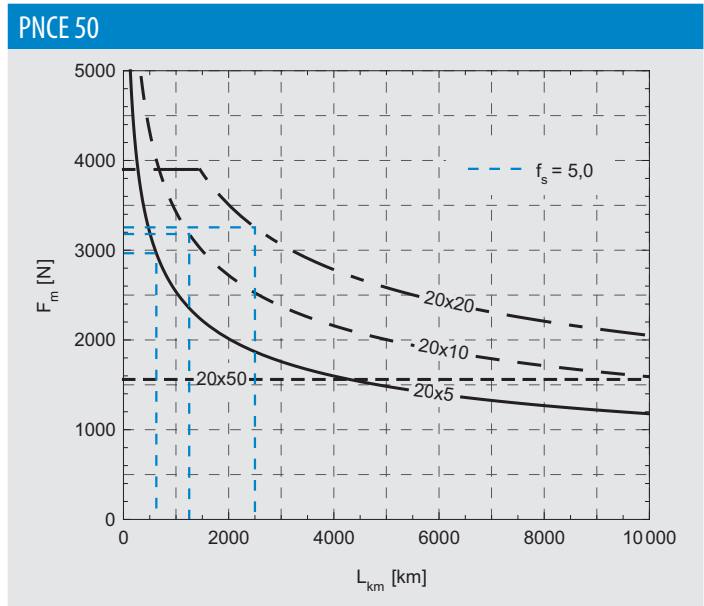
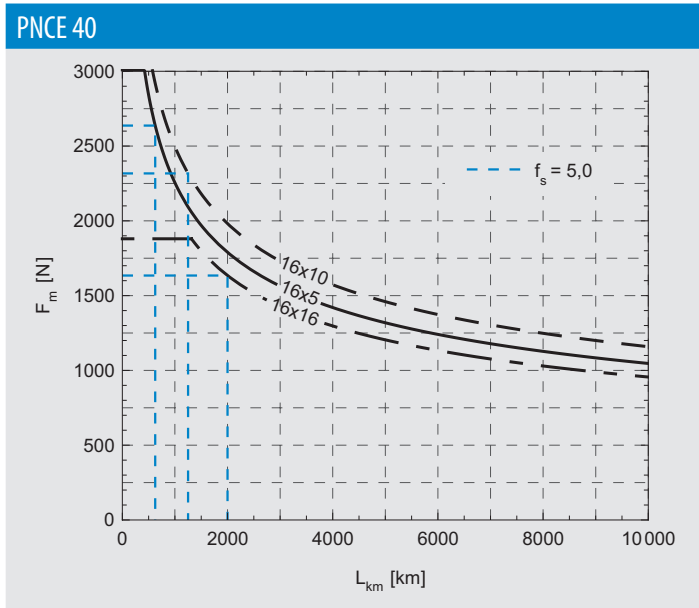
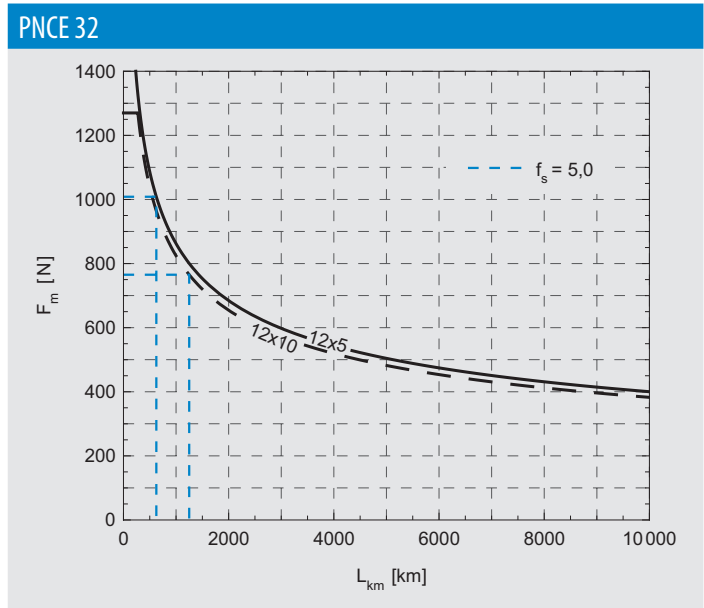


Values on the curves represent the absolute stroke



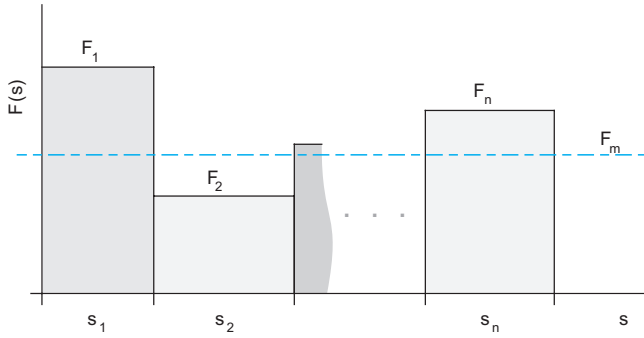
Diagrams taking into consideration
a travel speed of 0,5 m/s and an axial load of $F_{max}/4$.

Service life - applied mean axial load F_m as a function of the service life L_{km}



Mean axial load F_m calculation

$$F_m = \sqrt[3]{\frac{|F_1|^3 \times s_1 + |F_2|^3 \times s_2 + \dots + |F_n|^3 \times s_n}{s_1 + s_2 + \dots + s_n}}$$

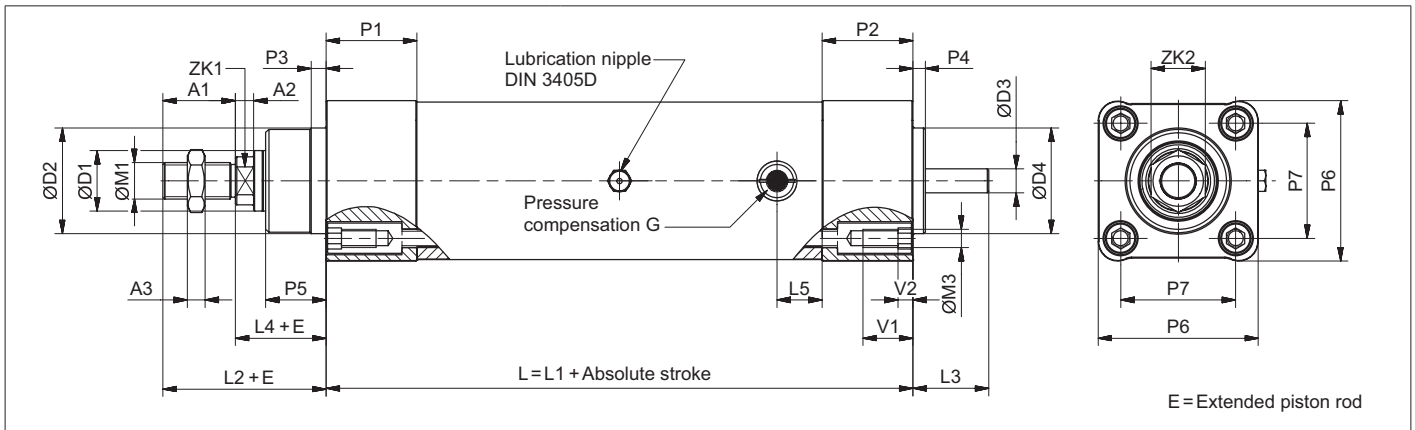


| | | |
|-------|--|------|
| F_m | Mean axial load | [N] |
| F_i | i-th axial load of a given loading regime $F(s)$, $i \in \{1, 2, \dots, n\}$ | [N] |
| s_i | i-th travel path of a given loading regime $F(s)$, $i \in \{1, 2, \dots, n\}$ | [mm] |

Diagrams presented on the page 15 are showing the theoretically determined service life of the ball screw drive when the mean axial load F_m at room temperature is taken into consideration.

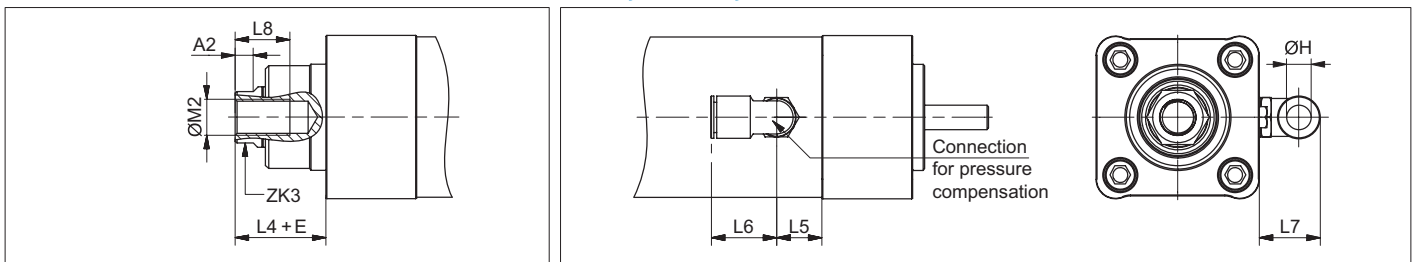
It should be noted that application conditions may have a significant effect on the service life.

DIMENSIONS



Female thread

IP65, IP65CR, FI

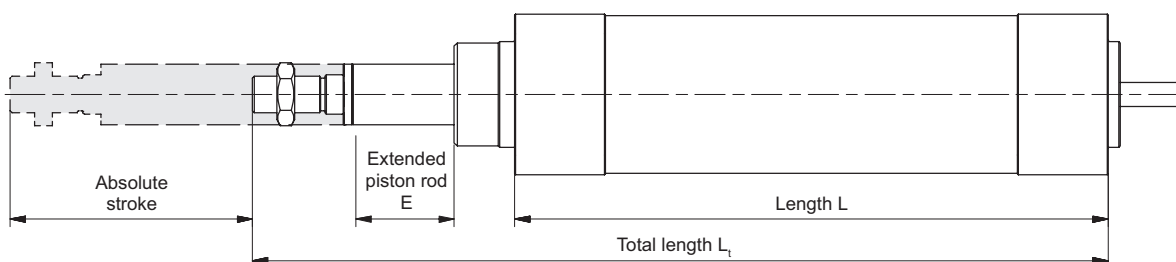


| PNCE | L1 (+0,2 / -1,4) | L2 | L3 | L4 (+1,9 / -0,8) | L5 | L6 | L7 | L8 | P1 | P2 | P3 | P4 (±0,1) | P5 (±0,1) | P6 | P7 | G |
|------|---------------------|----|----|---------------------|----|------|------|----|----|----|----|--------------|--------------|-----|------|-------|
| Size | [mm] | | | | | | | | | | | | | | | |
| 32 | 136 | 48 | 21 | 26 | 15 | 22,5 | 20,0 | 15 | 30 | 30 | 5 | 4 | 18 | 47 | 32,5 | G 1/8 |
| 40 | 144 | 54 | 25 | 30 | 15 | 22,5 | 20,0 | 18 | 30 | 30 | 5 | 4 | 20 | 54 | 38 | G 1/8 |
| 50 | 180 | 69 | 32 | 37 | 15 | 22,5 | 20,0 | 25 | 36 | 37 | 5 | 4 | 25 | 65 | 46,5 | G 1/8 |
| 63 | 171 | 69 | 38 | 37 | 15 | 22,5 | 20,0 | 25 | 38 | 38 | 5 | 4 | 25 | 75 | 56,5 | G 1/8 |
| 80 | 204 | 86 | 40 | 46 | 15 | 22,5 | 20,0 | 30 | 40 | 40 | 18 | 14 | 31 | 93 | 72 | G 1/8 |
| 100 | 224 [239] | 91 | 50 | 51 | 25 | 28,5 | 28,0 | 30 | 42 | 42 | 20 | 18 | 34 | 110 | 89 | G 3/8 |

| PNCE | ØD1 (f8) | ØD2 (d11) | ØD3 (h7) | ØD4 (g7) | ØM1 | ØM2 | ØM3 | ØH | A1 | A2 | A3 | ZK1 | ZK2 | ZK3 | V1 | V2 |
|------|-------------|--------------|-------------|-------------|----------|-----|-----|----|----|----|----|-----|-----|-----|----|-----|
| Size | [mm] | | | | | | | | | | | | | | | |
| 32 | 18 | 30 | 6 | 30 | M10x1,25 | M6 | 8 | 8 | 22 | 5 | 5 | 10 | 17 | 16 | 16 | 4,5 |
| 40 | 20 | 35 | 8 | 35 | M12x1,25 | M6 | 8 | 8 | 24 | 6 | 6 | 13 | 19 | 17 | 16 | 4,5 |
| 50 | 25 | 40 | 11 | 40 | M16x1,5 | M8 | 8 | 8 | 32 | 8 | 8 | 17 | 24 | 22 | 18 | 4,5 |
| 63 | 30 | 45 | 15 | 45 | M16x1,5 | M8 | 8 | 8 | 32 | 8 | 8 | 17 | 24 | 27 | 18 | 4,5 |
| 80 | 40 | 60 | 18 | 60 | M20x1,5 | M12 | M10 | 8 | 40 | 8 | 10 | 22 | 30 | 32 | 17 | / |
| 100 | 50 | 70 | 25 | 70 | M20x1,5 | M12 | M10 | 12 | 40 | 6 | 10 | 22 | 30 | 40 | 17 | / |

Bracketed values for ball screw 40x40

Absolute stroke and length of the PNCE definition



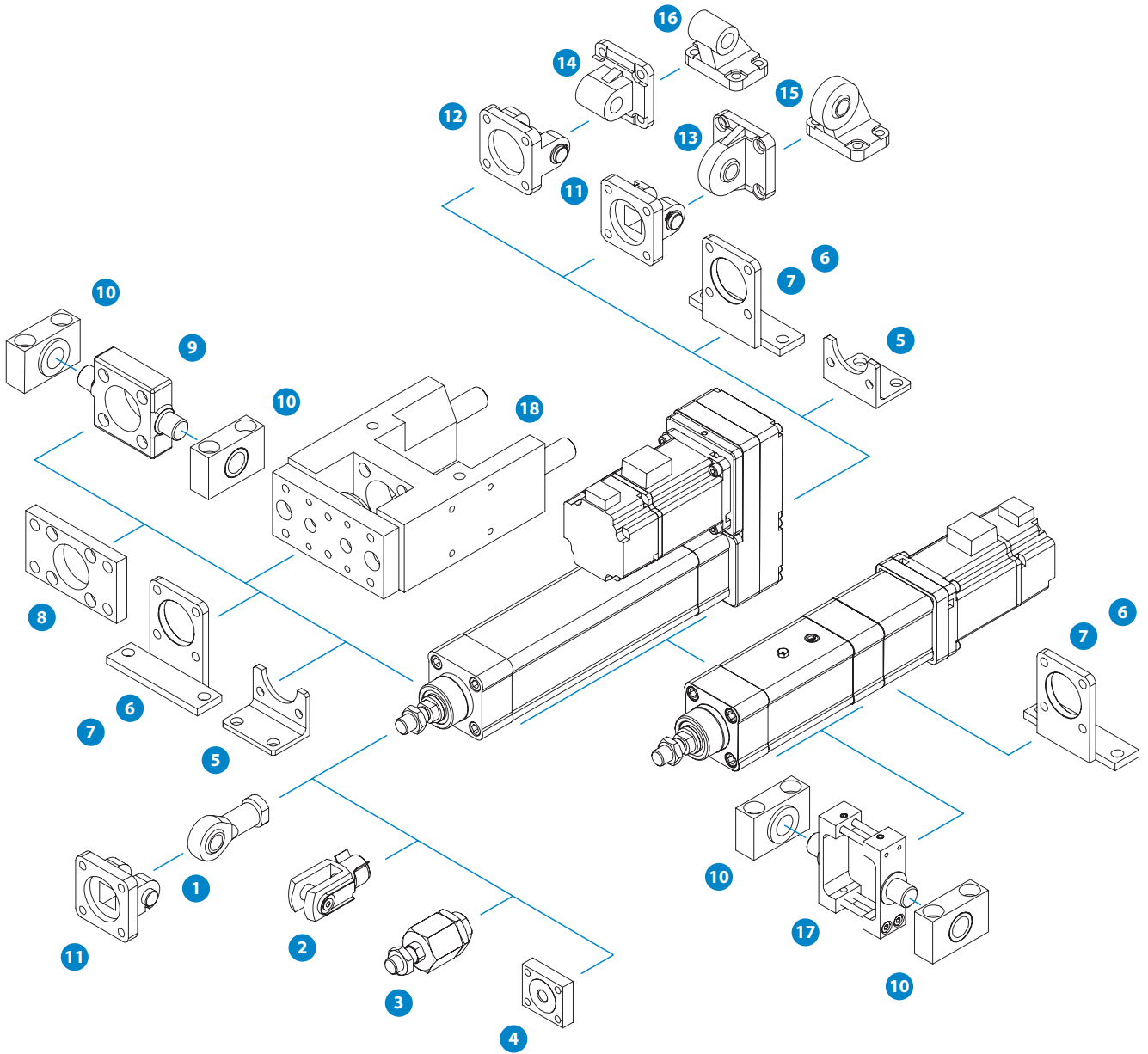
Absolute stroke = Effective stroke + 2 × Safety stroke
L = L1 + Absolute stroke
 $L_t = L + L2 + E$ $E_{max} = 200 \text{ mm}$

i The electric cylinder does not include any safety stroke

Female thread:
 $L_t = L + L4 + E$ $E_{max} = 200 \text{ mm}$

E Extended piston rod [mm]

ACCESSORIES

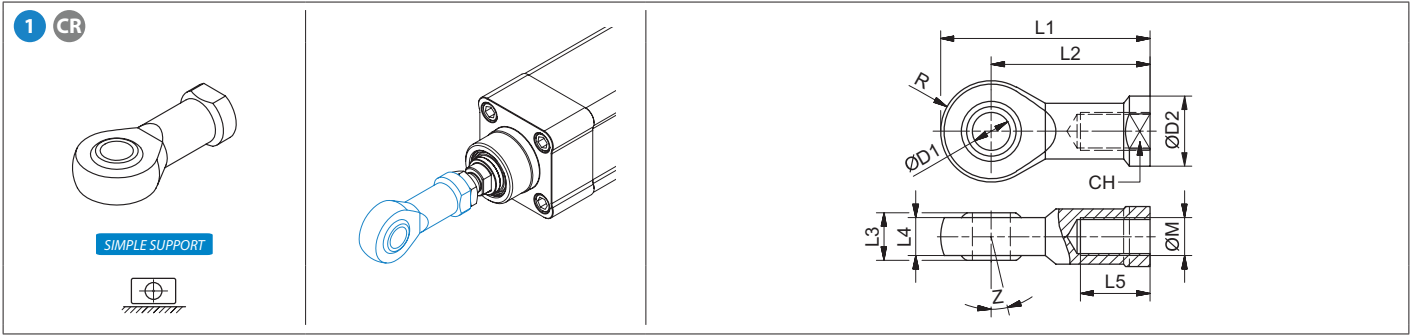


| Page | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | | | | | | | |
|---------------------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| Piston rod accessories | 1 | 2 | 3 | 4 | | | | | | | | | | | | | |
| Mounting attachment accessories | | | | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | |
| Guiding unit | | | | | | | | | | | | | | | | 18 | 18 |

CR This sign applies to corrosion resistant products

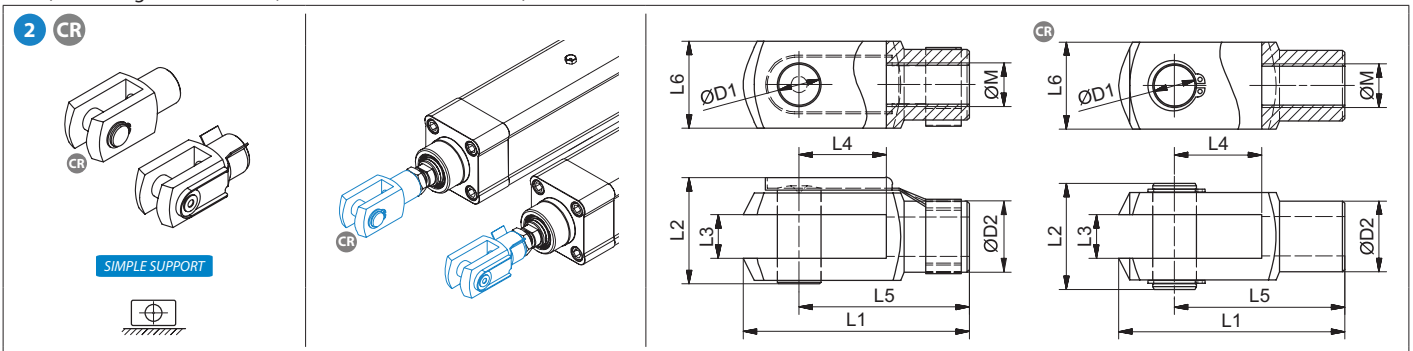
Piston rod accessories

SGS (Material: galvanized steel, CR - stainless steel AISI 304)



| SGS | | | ØM | L1 | L2 | L3 | L4 | L5 | ØD1 (H7) | ØD2 | R | CH | Z | m | F _{max} | |
|------|------|---------|----------|-----|----|----|------|----|----------|-----|----|----|----|------|-------------------|-----|
| Size | Code | Code CR | [mm] | | | | | | | | | | | [°] | [kg] | [N] |
| 32 | 9206 | 69550 | M10x1,25 | 57 | 43 | 14 | 10,5 | 20 | 10 | 19 | 14 | 17 | 13 | 0,08 | F _{PNCE} | |
| 40 | 9208 | 69551 | M12x1,25 | 66 | 50 | 16 | 12 | 22 | 12 | 22 | 16 | 19 | 13 | 0,11 | F _{PNCE} | |
| 50 | 9210 | 50691 | M16x1,5 | 85 | 64 | 21 | 15 | 28 | 16 | 27 | 21 | 22 | 15 | 0,22 | F _{PNCE} | |
| 63 | 9210 | 50691 | M16x1,5 | 85 | 64 | 21 | 15 | 28 | 16 | 27 | 21 | 22 | 15 | 0,22 | F _{PNCE} | |
| 80 | 9211 | 49572 | M20x1,5 | 102 | 77 | 25 | 18 | 33 | 20 | 34 | 25 | 30 | 14 | 0,41 | F _{PNCE} | |
| 100 | 9211 | 49572 | M20x1,5 | 102 | 77 | 25 | 18 | 33 | 20 | 34 | 25 | 30 | 14 | 0,41 | F _{PNCE} | |

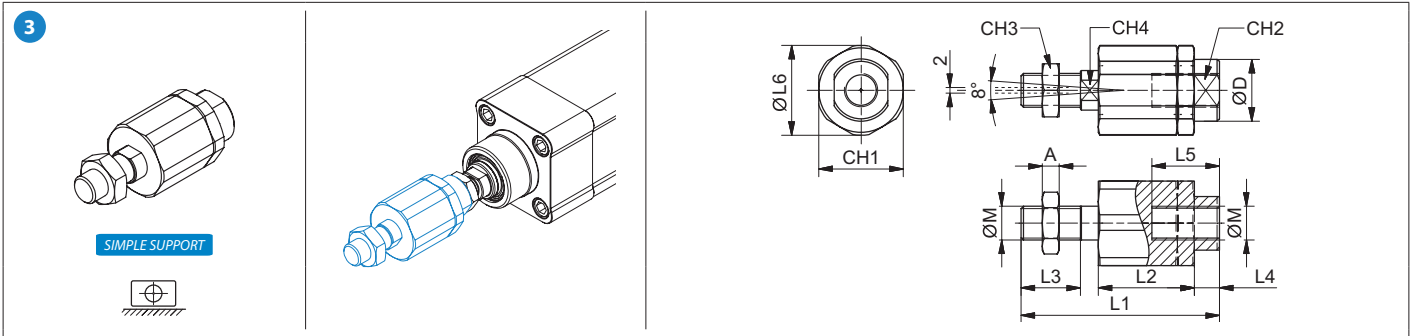
SG (Material: galvanized steel, CR - stainless steel AISI 304)



| SG | | | ØM | L1 (±0,5) | L2 | L3 (B13) | L4 (±0,5) | L5 | L6 | ØD1 (h11) | ØD2 | m | F _{max} | |
|------|------|---------|----------|-----------|---------|----------|-----------|----|----|-----------|-----|------|-------------------|-----|
| Size | Code | Code CR | [mm] | | | | | | | | | | [kg] | [N] |
| 32 | 9186 | 69547 | M10x1,25 | 52 | 26 [25] | 10 | 20 | 40 | 20 | 10 | 18 | 0,09 | F _{PNCE} | |
| 40 | 9189 | 69548 | M12x1,25 | 62 | 32 [30] | 12 | 24 | 48 | 24 | 12 | 20 | 0,15 | F _{PNCE} | |
| 50 | 9191 | 69549 | M16x1,5 | 83 | 40 [39] | 16 | 32 | 64 | 32 | 16 | 26 | 0,33 | F _{PNCE} | |
| 63 | 9191 | 69549 | M16x1,5 | 83 | 40 [39] | 16 | 32 | 64 | 32 | 16 | 26 | 0,33 | F _{PNCE} | |
| 80 | 9192 | 70248 | M20x1,5 | 105 | 48 | 20 | 40 | 80 | 40 | 20 | 34 | 0,68 | F _{PNCE} | |
| 100 | 9192 | 70248 | M20x1,5 | 105 | 48 | 20 | 40 | 80 | 40 | 20 | 34 | 0,68 | F _{PNCE} | |

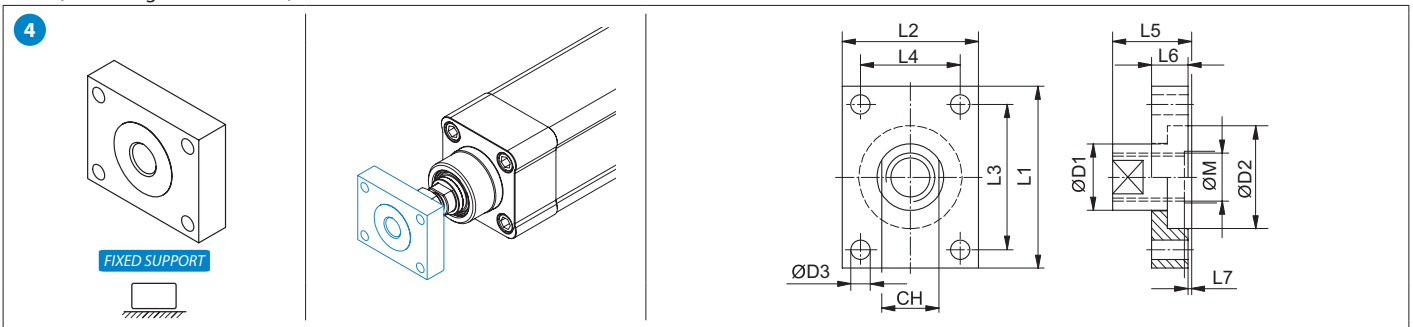
Bracketed values for type CR

FK (Material: galvanized steel)



| FK | ØM | L1 | L2 | L3 | L4 | L5 | ØL6 | A | ØD | CH1 | CH2 | CH3 | CH4 | m | F _{max} | |
|------|------|----------|-----|----|----|----|-----|----|----|-----|-----|-----|-----|----|------------------|-------------------|
| Size | Code | [mm] | | | | | | | | | | | | | [kg] | [N] |
| 32 | 5466 | M10x1,25 | 71 | 35 | 20 | 11 | 23 | 32 | 6 | 22 | 30 | 19 | 17 | 12 | 0,22 | F _{PNCE} |
| 40 | 5468 | M12x1,25 | 75 | 35 | 24 | 11 | 23 | 32 | 7 | 22 | 30 | 19 | 19 | 12 | 0,23 | 5000 |
| 50 | 5470 | M16x1,5 | 103 | 54 | 32 | 9 | 32 | 45 | 8 | 32 | 41 | 27 | 24 | 20 | 0,66 | 10000 |
| 63 | 5470 | M16x1,5 | 103 | 54 | 32 | 9 | 32 | 45 | 8 | 32 | 41 | 27 | 24 | 20 | 0,66 | 10000 |
| 80 | 5471 | M20x1,5 | 119 | 54 | 40 | 17 | 39 | 45 | 9 | 32 | 41 | 27 | 30 | 20 | 0,70 | 10000 |
| 100 | 5471 | M20x1,5 | 119 | 54 | 40 | 17 | 39 | 45 | 9 | 32 | 41 | 27 | 30 | 20 | 0,70 | 10000 |

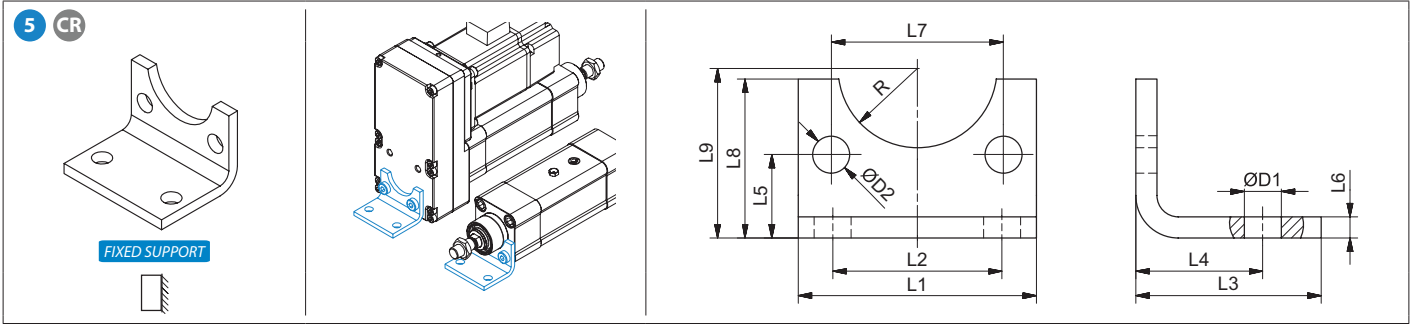
KSZ (Material: galvanized steel)



| KSZ | ØM | L1 | L2 | L3 | L4 | L5 | L6 | L7 | ØD1 (-0,2) | ØD2 | ØD3 (H13) | CH | m | F _{max} | |
|------|------|----------|----|----|----|----|----|----|------------|-----|-----------|-----|----|------------------|-------------------|
| Size | Code | [mm] | | | | | | | | | | | | [kg] | [N] |
| 32 | 5229 | M10x1,25 | 40 | 35 | 30 | 25 | 20 | 10 | 0,1 | 17 | 26 | 5,5 | 15 | 0,11 | F _{PNCE} |
| 40 | 5230 | M12x1,25 | 50 | 40 | 40 | 30 | 22 | 12 | 0,1 | 17 | 26 | 5,5 | 15 | 0,18 | F _{PNCE} |
| 50 | 5231 | M16x1,5 | 60 | 45 | 48 | 33 | 25 | 12 | 0,1 | 22 | 34 | 6,6 | 19 | 0,25 | F _{PNCE} |
| 63 | 5231 | M16x1,5 | 60 | 45 | 48 | 33 | 25 | 12 | 0,1 | 22 | 34 | 6,6 | 19 | 0,25 | F _{PNCE} |
| 80 | 5232 | M20x1,5 | 72 | 50 | 57 | 35 | 32 | 15 | 0,1 | 30 | 44 | 9 | 27 | 0,42 | 24800 |
| 100 | 5232 | M20x1,5 | 72 | 50 | 57 | 35 | 32 | 15 | 0,1 | 30 | 44 | 9 | 27 | 0,42 | 24800 |

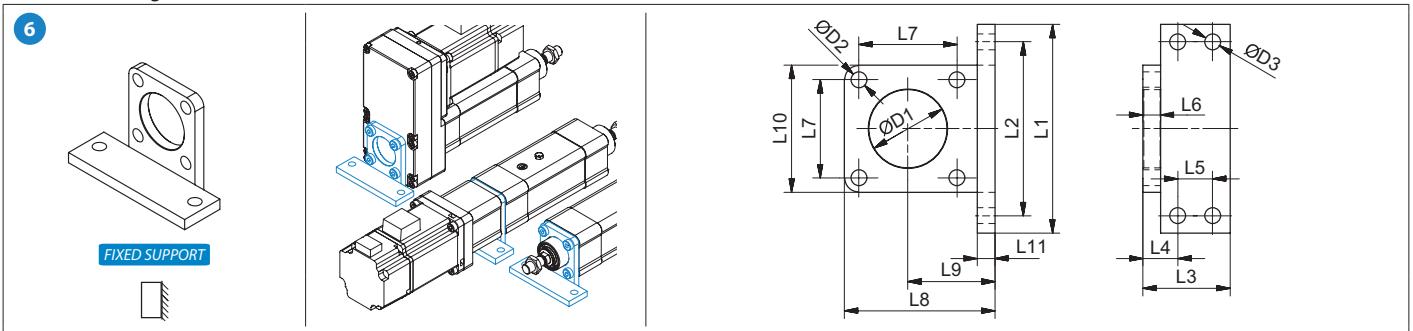
Mounting attachments' accessories

HG (Material: galvanized steel, CR - stainless steel AISI 304)



| HG | | | | | L1 | L2 | L3 | L4 | L5 | L6 | L7 | L8 | L9 | ØD1 | ØD2 | R | m | F _{max} | |
|------|-------------------|----------------------|-----------------------|--------------------------|------|----|----|----|-------|----|------|----|----|-----|-----|------|------|-------------------|-----|
| Size | Code ¹ | Code CR ¹ | Code MSD ² | Code MSD CR ² | [mm] | | | | | | | | | | | | | [kg] | [N] |
| 32 | 69601 | 69605 | 69597 | 69609 | 45 | 32 | 35 | 24 | 15,75 | 4 | 32,5 | 30 | 32 | 7 | 7 | 15 | 0,09 | F _{PNCE} | |
| 40 | 69602 | 69606 | 69598 | 69610 | 52 | 36 | 36 | 28 | 17 | 4 | 38 | 30 | 36 | 10 | 7 | 17,5 | 0,10 | 3500 | |
| 50 | 69603 | 69607 | 69599 | 69611 | 65 | 45 | 47 | 32 | 21,75 | 5 | 46,5 | 36 | 45 | 10 | 9 | 20 | 0,20 | 5400 | |
| 63 | 69604 | 69608 | 69600 | 69612 | 75 | 50 | 45 | 32 | 21,75 | 5 | 56,5 | 35 | 50 | 10 | 9 | 22,5 | 0,22 | 6200 | |

HGL (Material: galvanized steel)



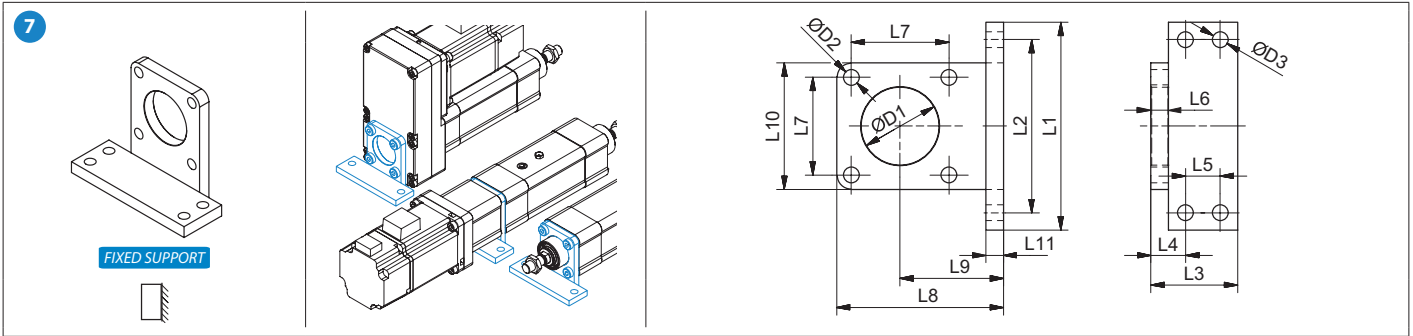
| HGL | | | L1 | L2 | L3 | L4 | L5 | L6 | L7 | L8 | L9 | L10 | L11 | ØD1 | ØD2 | ØD3 | m | F _{max} |
|------|---------------------|-----------------------|------|-----|----|----|----|----|------|------|----|-----|-----|-----|-----|------|------|-------------------|
| Size | Code ^{1,3} | Code MSD ² | [mm] | | | | | | | | | | | | | [kg] | [N] | |
| 32 | 69162 | 69613 | 79 | 65 | 30 | 16 | - | 6 | 32,5 | 55,5 | 32 | 47 | 6 | 30 | 7 | 7 | 0,20 | F _{PNCE} |
| 40 | 69163 | 69614 | 90 | 75 | 30 | 16 | - | 6 | 38 | 63,0 | 36 | 54 | 6 | 35 | 7 | 9 | 0,24 | 5100 |
| 50 | 69164 | 69615 | 110 | 90 | 35 | 19 | - | 10 | 46,5 | 77,5 | 45 | 65 | 10 | 40 | 9 | 9 | 0,56 | 11100 |
| 63 | 69165 | 69616 | 120 | 100 | 50 | 20 | 20 | 10 | 56,5 | 87,5 | 50 | 75 | 10 | 45 | 9 | 9 | 0,81 | 11100 |

¹ Front cap mounting

² Motor side drive mounting

³ Motor adapter mounting

HGLL (Material: galvanized steel)



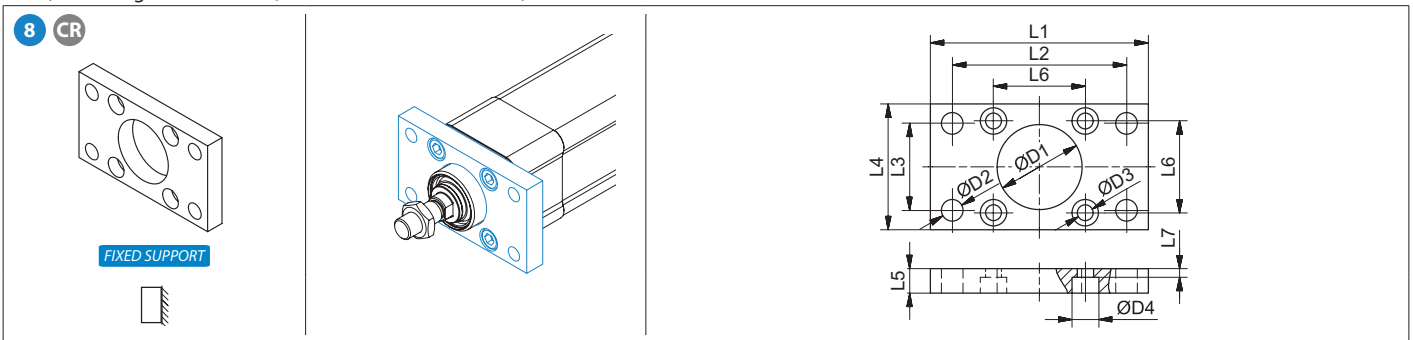
| HGLL | | | L1 | L2 | L3 | L4 | L5 | L6 (±0,5) | L7 | L8 | L9 (±0,1) | L10 | L11 (±0,5) | ØD1 (H11) | ØD2 (H13) | ØD3 (H13) | m | F _{max} |
|------|---------------------|-----------------------|------|-----|----|----|----|--------------|------|-------|--------------|-----|---------------|--------------|--------------|--------------|------|-------------------|
| Size | Code ^{1,3} | Code MSD ² | [mm] | | | | | | | | | | | | | | [kg] | [N] |
| 32 | 69429 | 69617 | 79 | 65 | 30 | 16 | - | 6 | 32,5 | 58,5 | 35 | 47 | 6 | 30 | 7 | 7 | 0,21 | F _{PNCE} |
| 40 | 69166 | 69618 | 90 | 75 | 30 | 16 | - | 6 | 38 | 72,0 | 45 | 54 | 6 | 35 | 7 | 9 | 0,26 | 2800 |
| 50 | 69167 | 69619 | 110 | 90 | 35 | 19 | - | 10 | 46,5 | 92,5 | 60 | 65 | 10 | 40 | 9 | 9 | 0,64 | 7100 |
| 63 | 69168 | 69620 | 120 | 100 | 50 | 20 | 20 | 10 | 56,5 | 97,5 | 60 | 75 | 10 | 45 | 9 | 9 | 0,87 | 10100 |
| 80 | 77284 | | 153 | 128 | 62 | 27 | 25 | 12 | 72,0 | 128,5 | 82 | 93 | 13 | 60 | 11 | 11 | 1,71 | 13200 |
| 100 | 78955 | | 178 | 148 | 72 | 27 | 30 | 15 | 89 | 137,0 | 82 | 110 | 15 | 70 | 11 | 11 | 2,57 | F _{PNCE} |

¹ Front cap mounting

² Motor side drive mounting

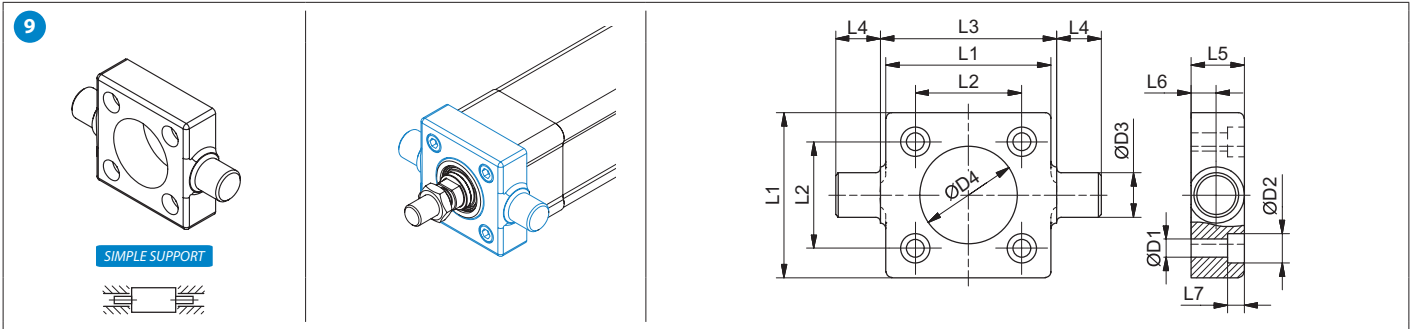
³ Motor adapter mounting

FG (Material: galvanized steel, CR - stainless steel AISI 304)



| FG | | | L1 | L2 | L3 | L4 | L5 | L6 | L7 | ØD1 (H11) | ØD2 (H13) | ØD3 | ØD4 | m | F _{max} |
|------|-------|---------|------|-----|----|-----|----|------|-----|--------------|--------------|------|------|------|-------------------|
| Size | Code | Code CR | [mm] | | | | | | | | | | | [kg] | [N] |
| 32 | 5485 | 69495 | 80 | 64 | 32 | 45 | 10 | 32,5 | 5 | 30 | 7 | 6,5 | 10,5 | 0,22 | F _{PNCE} |
| 40 | 5487 | 69497 | 90 | 72 | 36 | 52 | 10 | 38 | 5 | 35 | 9 | 6,5 | 10,5 | 0,28 | F _{PNCE} |
| 50 | 5489 | 69498 | 110 | 90 | 45 | 65 | 12 | 46,5 | 6,5 | 40 | 9 | 8,5 | 13,5 | 0,53 | F _{PNCE} |
| 63 | 5491 | 69499 | 120 | 100 | 50 | 75 | 12 | 56,5 | 6,5 | 45 | 9 | 8,5 | 13,5 | 0,68 | F _{PNCE} |
| 80 | 83009 | 83013 | 150 | 126 | 63 | 95 | 16 | 72 | 9 | 60 | 12 | 10,5 | 16,5 | 1,40 | F _{PNCE} |
| 100 | 83010 | 83014 | 170 | 150 | 75 | 115 | 16 | 89 | 9 | 70 | 14 | 10,5 | 16,5 | 1,92 | F _{PNCE} |

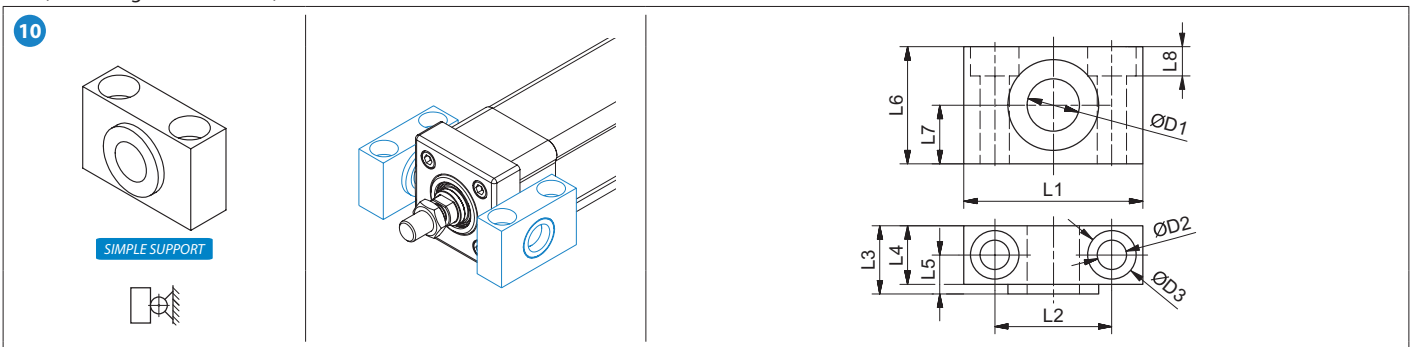
ZK (Material: galvanized steel)



| ZK | | L1 | L2 | L3 (h14) | L4 (h14) | L5 | L6 (+0,2 / 0) | L7 (+0,5 / 0) | ØD1 | ØD2 | ØD3 (e9) | ØD4 (H11) | m | F _{max} |
|------|-------|------|------|-------------|-------------|----|------------------|------------------|------|------|-------------|--------------|------|-------------------|
| Size | Code | [mm] | | | | | | | | | | | [kg] | [N] |
| 32 | 69075 | 46 | 32,5 | 50 | 12 | 14 | 6,5 | 6 | 6,5 | 10,5 | 12 | 30 | 0,17 | F _{PNCE} |
| 40 | 69083 | 59 | 38 | 63 | 16 | 19 | 9 | 6 | 6,5 | 10,5 | 16 | 35 | 0,43 | F _{PNCE} |
| 50 | 69084 | 69 | 46,5 | 75 | 16 | 19 | 9 | 8 | 8,5 | 13,5 | 16 | 40 | 0,58 | F _{PNCE} |
| 63 | 69085 | 84 | 56,5 | 90 | 20 | 24 | 11,5 | 8 | 8,5 | 13,5 | 20 | 45 | 1,12 | F _{PNCE} |
| 80 | 83027 | 102 | 72 | 110 | 20 | 24 | 11,5 | 10 | 10,5 | 16,5 | 20 | 60 | 1,57 | F _{PNCE} |
| 100 | 83028 | 125 | 89 | 132 | 25 | 29 | 14 | 10 | 10,5 | 16,5 | 25 | 70 | 2,93 | F _{PNCE} |

LZ (Material: galvanized steel)

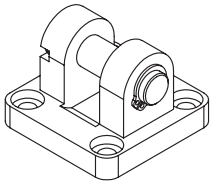
i Set contains 2 pcs



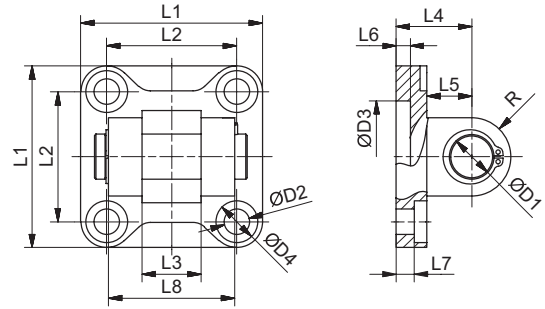
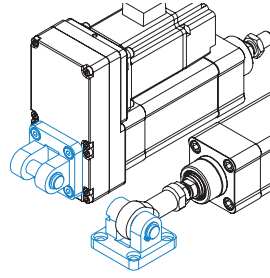
| LZ | | L1 | L2 (±0,2) | L3 | L4 | L5 | L6 | L7 (±0,1) | L8 (±0,5) | ØD1 (F7) | ØD2 (H13) | ØD3 (H13) | m | F _{max} |
|------|------|------|--------------|------|----|------|----|--------------|--------------|-------------|--------------|--------------|------|-------------------|
| Size | Code | [mm] | | | | | | | | | | | [kg] | [N] |
| 32 | 8139 | 46 | 32 | 18 | 15 | 10,5 | 30 | 15 | 7 | 12 | 6,6 | 11 | 0,10 | F _{PNCE} |
| 40 | 8141 | 55 | 36 | 21 | 18 | 12 | 36 | 18 | 9 | 16 | 9 | 15 | 0,15 | F _{PNCE} |
| 50 | 8141 | 55 | 36 | 21 | 18 | 12 | 36 | 18 | 9 | 16 | 9 | 15 | 0,15 | 9200 |
| 63 | 8143 | 65 | 42 | 23 | 20 | 13 | 40 | 20 | 11 | 20 | 11 | 18 | 0,25 | 12800 |
| 80 | 8143 | 65 | 42 | 23 | 20 | 13 | 40 | 20 | 11 | 20 | 11 | 18 | 0,25 | 12800 |
| 100 | 8135 | 75 | 50 | 28,5 | 25 | 16 | 50 | 25 | 13 | 25 | 14 | 20 | 0,40 | 20000 |

SGN (Material: aluminium, CR - stainless steel AISI 316)

11 CR



SIMPLE SUPPORT

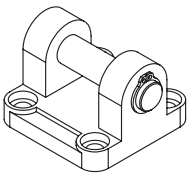


| SGN | | | | | L1 (±0,5) | L2 | L3 | L4 (±0,2) | L5 | L6 | L7 | L8 | ØD1 (f7) | ØD2 (H13) | ØD3 (H11) | ØD4 (H13) | R | m | F _{max} |
|------|-------------------|----------------------|-----------------------|--------------------------|--------------|------|----|--------------|---------|----|-----|----|-------------|--------------|--------------|--------------|----|-------------|-------------------|
| Size | Code ¹ | Code CR ¹ | Code MSD ² | Code MSD CR ² | [mm] | | | | | | | | | | | | | [kg] | [N] |
| 32 | 9200 | 69538 | 69621 | 69625 | 45 | 32,5 | 14 | 22 | 13 [12] | 5 | 5,5 | 34 | 10 | 6,6 | 30 | 11 | 10 | 0,10 [0,20] | F _{PNCE} |
| 40 | 9201 | 69539 | 69622 | 69626 | 52 [55] | 38 | 16 | 25 | 16 [15] | 5 | 5,5 | 40 | 12 | 6,6 | 35 | 11 | 12 | 0,14 [0,30] | 5700 |
| 50 | 9202 | 69540 | 69623 | 69627 | 65 | 46,5 | 21 | 27 | 16 [17] | 5 | 6,5 | 45 | 16 | 9 | 40 | 15 | 12 | 0,26 [0,48] | 7600 |
| 63 | 9203 | 69541 | 69624 | 69628 | 75 | 56,5 | 21 | 32 | 21 [20] | 5 | 6,5 | 51 | 16 | 9 | 45 | 15 | 16 | 0,35 [0,70] | 9600 |
| 80 | 9204 | 83257 | 9204 | 83257 | 95 | 72 | 25 | 36 | 22 | 5 | 10 | 65 | 20 | 11 | 45 | 18 | 20 | 0,68 [1,49] | 16000 |
| 100 | 9198 | 83259 | 9198 | 83259 | 115 | 89 | 25 | 41 | 27 [25] | 5 | 10 | 75 | 20 | 11 | 55 | 18 | 22 | 0,93 [2,16] | 20000 |

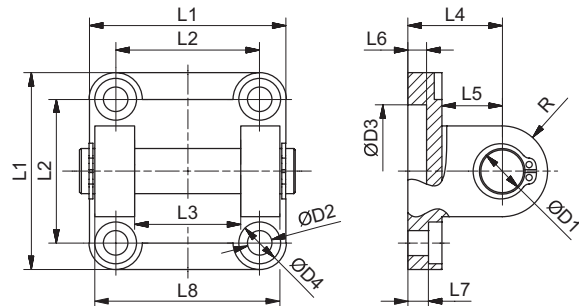
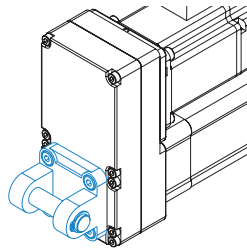
Bracketed values for type CR

SBG (Material: aluminium, CR - stainless steel AISI 304)

12 CR



SIMPLE SUPPORT



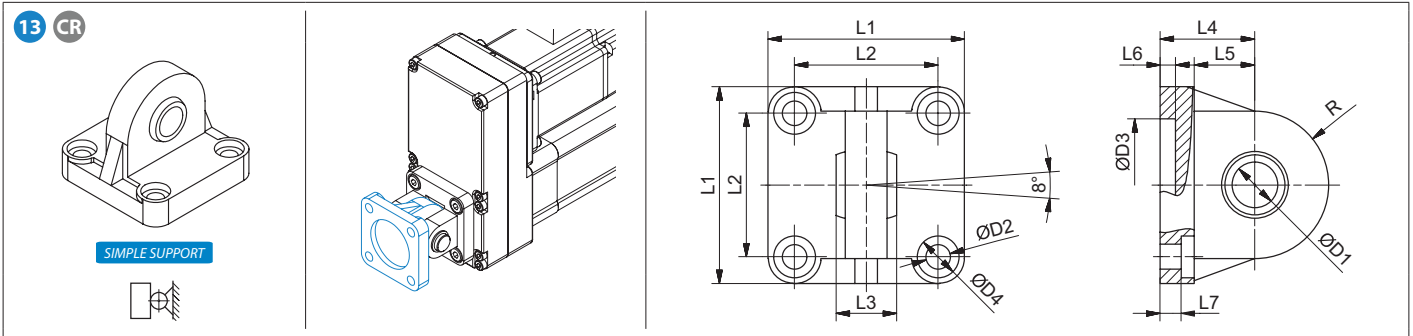
| SBG | | | | L1 | L2 | L3 | L4 (±0,2) | L5 | L6 | L7 | L8 | ØD1 (e8) | ØD2 (H13) | ØD3 (H11) | ØD4 (H13) | R | m | F _{max} |
|------|-----------------------|--------------------------|--|------|------|----|--------------|----|----|-----|-----|-------------|--------------|--------------|--------------|----|-------------|-------------------|
| Size | Code MSD ² | Code MSD CR ² | | [mm] | | | | | | | | | | | | | [kg] | [N] |
| 32 | 69629 | 69633 | | 45 | 32,5 | 26 | 22 | 13 | 5 | 5,5 | 45 | 10 | 6,6 | 30 | 11 | 10 | 0,11 [0,20] | F _{PNCE} |
| 40 | 69630 | 69634 | | 52 | 38 | 28 | 25 | 16 | 5 | 5,5 | 52 | 12 | 6,6 | 35 | 11 | 12 | 0,18 [0,31] | F _{PNCE} |
| 50 | 69631 | 69635 | | 65 | 46,5 | 32 | 27 | 16 | 5 | 6,5 | 60 | 12 | 9 | 40 | 15 | 12 | 0,23 [0,45] | 8000 |
| 63 | 69632 | 69636 | | 75 | 56,5 | 40 | 32 | 21 | 5 | 6,5 | 70 | 16 | 9 | 45 | 15 | 16 | 0,36 [0,70] | 11000 |
| 80 | 9252 | 83251 | | 93 | 72 | 50 | 36 | 22 | 5 | 10 | 90 | 16 | 11 | 45 | 18 | 16 | 0,61 [1,42] | 15360 |
| 100 | 9244 | 83253 | | 110 | 89 | 60 | 41 | 27 | 5 | 10 | 110 | 20 | 11 | 55 | 18 | 20 | 0,98 [2,50] | 24000 |

Bracketed values for type CR

¹ Front cap mounting

² Motor side drive mounting

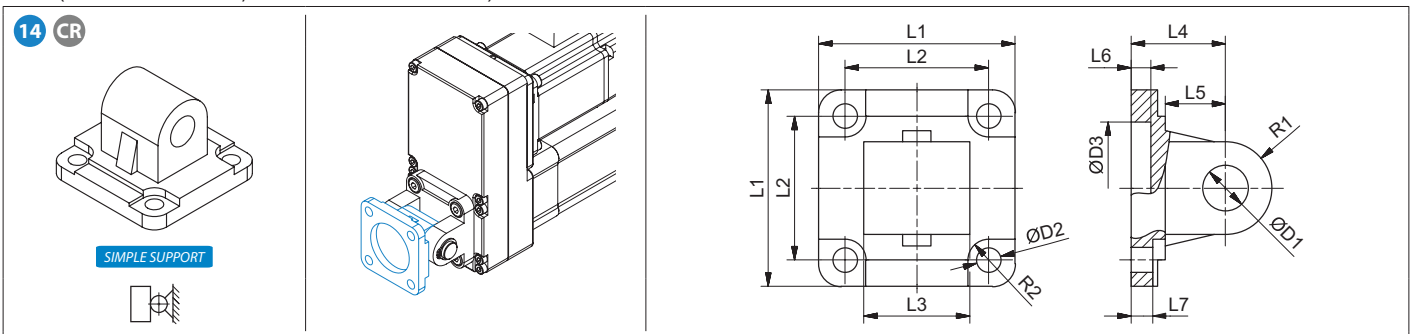
SSG (Material: aluminium, CR - stainless steel AISI 316)



| SSG | | | L1 | L2 | L3 | L4 (JS 15) | L5 | L6 | L7 (±0,5) | ØD1 (H7) | ØD2 (H13) | ØD3 (H11) | ØD4 (H13) | R | m | F _{max} |
|------|-------|---------|---------|------|----|---------------|---------|-------|--------------|-------------|--------------|--------------|--------------|---------|-------------|-------------------|
| Size | Code | Code CR | [mm] | | | | | | | | | | | | [kg] | [N] |
| 32 | 9292 | 69542 | 45 | 32,5 | 14 | 22 | 12 | 5 | 5,5 | 10 | 6,6 | 30 | 11 | 16 [15] | 0,09 [0,18] | F _{PNCE} |
| 40 | 9294 | 69544 | 52 [55] | 38 | 16 | 25 | 15 | 5 | 5,5 | 12 | 6,6 | 35 | 11 | 18 | 0,13 [0,29] | F _{PNCE} |
| 50 | 9296 | 50709 | 65 | 46,5 | 21 | 27 | 15 [17] | 5 | 6,5 | 16 | 9 | 40 | 15 | 21 | 0,24 [0,42] | 14400 |
| 63 | 9298 | 69546 | 75 | 56,5 | 21 | 32 | 20 | 5 | 6,5 | 16 | 9 | 45 | 15 | 23 | 0,30 [0,66] | 14400 |
| 80 | 9300 | 83249 | 95 | 72 | 25 | 36 | 20 [22] | 9 [5] | 10 | 20 | 11 | 45 | 18 | 28 [27] | 0,54 [1,24] | 22500 |
| 100 | 19731 | 83250 | 115 | 89 | 25 | 41 | 25 | 9 [5] | 10 | 20 | 11 | 55 | 18 | 30 | 0,68 [1,90] | 22500 |

Bracketed values for type CR

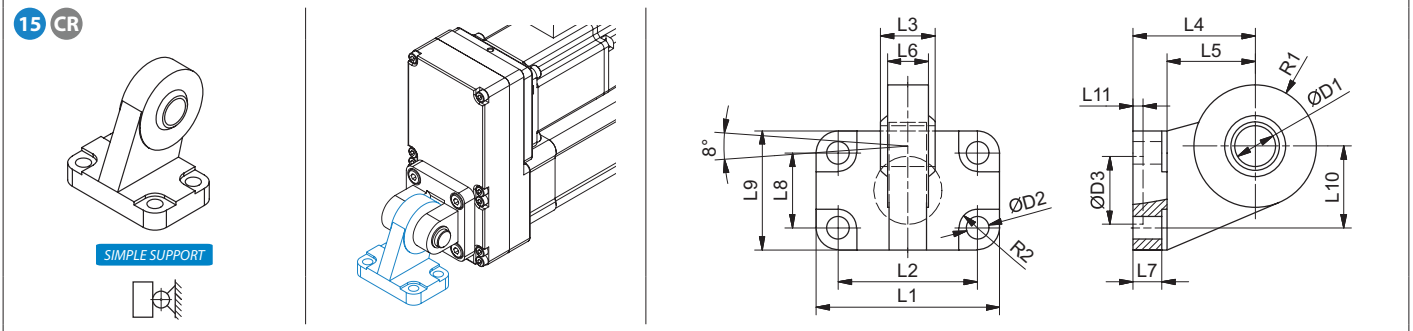
SGL (Material: aluminium, CR - stainless steel AISI 304)



| SGL | | | L1 | L2 | L3 | L4 (±0,2) | L5 | L6 | L7 | ØD1 (H9) | ØD2 (H13) | ØD3 (H11) | R1 | R2 | m | F _{max} |
|------|------|---------|------|------|----|--------------|----|----|-----|-------------|--------------|--------------|----|-----|-------------|-------------------|
| Size | Code | Code CR | [mm] | | | | | | | | | | | | [kg] | [N] |
| 32 | 9176 | 69500 | 45 | 32,5 | 26 | 22 | 13 | 5 | 5,5 | 10 | 6,6 | 30 | 10 | 5,5 | 0,08 [0,21] | F _{PNCE} |
| 40 | 9178 | 69501 | 52 | 38 | 28 | 25 | 16 | 5 | 5,5 | 12 | 6,6 | 35 | 12 | 5,5 | 0,11 [0,30] | F _{PNCE} |
| 50 | 9180 | 69502 | 65 | 46,5 | 32 | 27 | 16 | 5 | 6,5 | 12 | 9 | 40 | 12 | 7,5 | 0,18 [0,43] | 9200 |
| 63 | 9182 | 69503 | 75 | 56,5 | 40 | 32 | 21 | 5 | 6,5 | 16 | 9 | 45 | 16 | 7,5 | 0,27 [0,74] | 14300 |
| 80 | 9184 | 83091 | 93 | 72 | 50 | 36 | 22 | 5 | 10 | 16 | 11 | 45 | 16 | 9 | 0,47 [1,31] | 19200 |
| 100 | 9168 | 83092 | 110 | 89 | 60 | 41 | 27 | 5 | 10 | 20 | 11 | 55 | 20 | 9 | 0,79 [2,21] | 27100 |

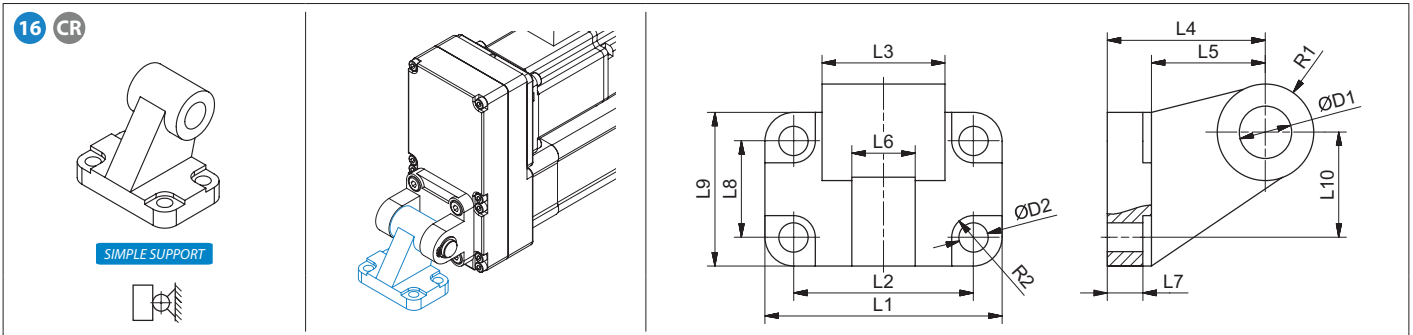
Bracketed values for type CR

LSG (Material: steel (black cathaphoresis), CR - stainless steel AISI 316)



| LSG | | | L1 | L2 | L3 | L4 (JS 15) | L5 | L6 | L7 | L8 | L9 | L10 (JS 15) | L11 | ØD1 (H7) | ØD2 (H13) | ØD3 (H13) | R1 | R2 (H13) | m | F _{max} | |
|------|------|---------|------|----|----|---------------|----|------|------|----|----|----------------|-----|-------------|--------------|--------------|----|-------------|------|-------------------|-----|
| Size | Code | Code CR | [mm] | | | | | | | | | | | | | | | | | [kg] | [N] |
| 32 | 8129 | 69071 | 51 | 38 | 14 | 32 | 22 | 10,5 | 8,5 | 18 | 31 | 21 | 3 | 10 | 6,6 | 20 | 15 | 5,5 | 0,18 | F _{PNCE} | |
| 40 | 8130 | 69072 | 54 | 41 | 16 | 36 | 26 | 12 | 8,5 | 22 | 35 | 24 | 3 | 12 | 6,6 | 20 | 18 | 5,5 | 0,27 | F _{PNCE} | |
| 50 | 8131 | 69073 | 65 | 50 | 21 | 45 | 33 | 15 | 10,5 | 30 | 45 | 33 | 3 | 16 | 9 | 20 | 20 | 7,5 | 0,46 | F _{PNCE} | |
| 63 | 8132 | 69069 | 67 | 52 | 21 | 50 | 38 | 15 | 10,5 | 35 | 50 | 37 | 3 | 16 | 9 | 20 | 23 | 7,5 | 0,55 | F _{PNCE} | |
| 80 | 8133 | 83089 | 86 | 66 | 25 | 63 | 49 | 18 | 11,5 | 40 | 60 | 47 | 3 | 20 | 11 | 20 | 27 | 9 | 0,97 | F _{PNCE} | |
| 100 | 8127 | 83090 | 96 | 76 | 25 | 71 | 56 | 18 | 12,5 | 50 | 70 | 55 | 3 | 20 | 11 | 20 | 30 | 9 | 1,33 | F _{PNCE} | |

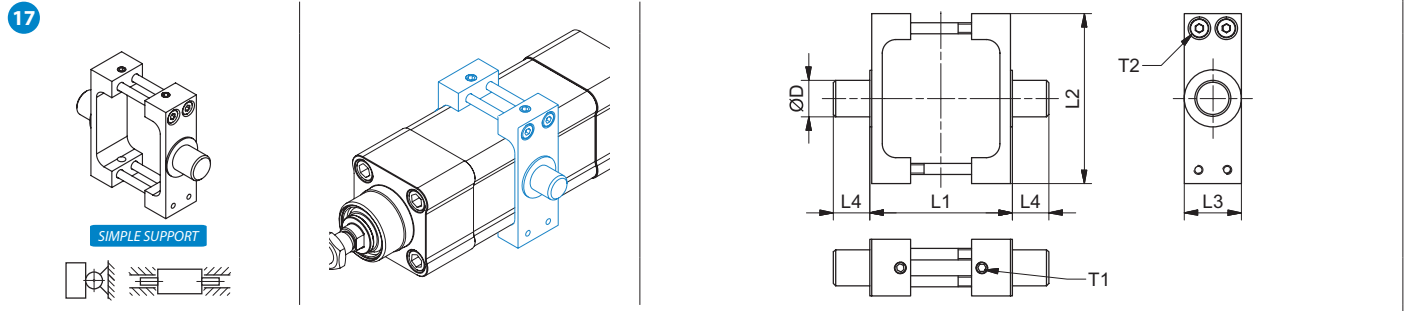
LG (Material: aluminium, CR - stainless steel AISI 304)



| LG | | | L1 | L2 | L3 | L4 | L5 | L6 | L7 | L8 | L9 | L10 | ØD1 (H9) | ØD2 (H13) | R1 | R2 | m | F _{max} | | | |
|------|------|---------|------|----|----|----|----|----|------|----|----|-----|-------------|--------------|----|-----|-------------|-------------------|--|------|-----|
| Size | Code | Code CR | [mm] | | | | | | | | | | | | | | | | | [kg] | [N] |
| 32 | 8119 | 69505 | 51 | 38 | 26 | 32 | 24 | 10 | 6,4 | 18 | 31 | 21 | 10 | 6,6 | 10 | 5,5 | 0,06 [0,16] | F _{PNCE} | | | |
| 40 | 8120 | 69506 | 54 | 41 | 28 | 36 | 26 | 15 | 8,4 | 22 | 35 | 24 | 12 | 6,6 | 11 | 5,5 | 0,14 [0,24] | F _{PNCE} | | | |
| 50 | 8121 | 69507 | 65 | 50 | 32 | 45 | 33 | 16 | 10,4 | 30 | 45 | 33 | 12 | 9 | 13 | 7,5 | 0,14 [0,42] | 9200 | | | |
| 63 | 8122 | 69508 | 67 | 52 | 40 | 50 | 36 | 16 | 12,4 | 35 | 50 | 37 | 16 | 9 | 15 | 7,5 | 0,20 [0,53] | 15300 | | | |
| 80 | 8123 | 83087 | 86 | 66 | 50 | 63 | 49 | 20 | 11,5 | 40 | 60 | 47 | 16 | 11 | 15 | 9 | 0,39 [0,98] | 19200 | | | |
| 100 | 8117 | 83088 | 96 | 76 | 60 | 71 | 54 | 20 | 14,5 | 50 | 70 | 55 | 20 | 11 | 19 | 9 | 0,55 [1,48] | F _{PNCE} | | | |

Bracketed values for type CR

ZKCE (Material: galvanized steel)



| ZKCE | | L1 | L2 | L3 | L4 | ØD | T1 | T2 | m | F _{max} |
|------|--------|------|-----|----|------|----|------|----|------|-------------------|
| Size | Code | [mm] | | | | | [Nm] | | [kg] | [N] |
| 32 | 69148 | 50 | 65 | 25 | 12 | 12 | 5 | 3 | 0,15 | F _{PNCE} |
| 40 | 69149 | 63 | 75 | 25 | 16 | 16 | 7 | 5 | 0,30 | F _{PNCE} |
| 50 | 69150 | 75 | 95 | 30 | 16 | 16 | 7 | 5 | 0,52 | 8500 |
| 63 | 69151 | 90 | 105 | 30 | 20 | 20 | 7 | 5 | 0,64 | 8500 |
| 80 | 100349 | 110 | 130 | 30 | 20 | 20 | 11 | 9 | 0,89 | 10000 |
| 100 | 100350 | 132 | 145 | 40 | 24,5 | 25 | 25 | 19 | 1,52 | 16000 |

Guiding unit

GUH (Material: body - aluminium, guides - steel)

i PERMISSIBLE LOAD

BA With slide bushes
Displacement force = 15 N*

BB With ball bushes
Displacement force = 15 N*

* For the case of GUH 80/100 displacement force = 40 N

HOW TO ORDER



Guiding unit

Size:

• 32 • 40 • 50 • 63 • 80 • 100

Absolute stroke + Extended piston rod E [mm]

Option: • BA: with slide bushes
• BB: with ball bushes

i Absolute stroke + extended piston rod E = max. 500mm

i For guiding unit stroke over 500 mm please contact us

| PNCE | Mass of GUH | Moved mass of GUH* |
|------|--|---|
| | m_{GUH} [kg] | $M_{m, GUH}$ [kg] |
| 32 | $1,57 + 0,0017 \times (\text{Abs. stroke} + E)$ | $0,86 + 0,0017 \times (\text{Abs. stroke} + E)$ |
| 40 | $2,48 + 0,0031 \times (\text{Abs. stroke} + E)$ | $1,32 + 0,0031 \times (\text{Abs. stroke} + E)$ |
| 50 | $4,18 + 0,0047 \times (\text{Abs. stroke} + E)$ | $2,47 + 0,0047 \times (\text{Abs. stroke} + E)$ |
| 63 | $5,54 + 0,0047 \times (\text{Abs. stroke} + E)$ | $2,90 + 0,0047 \times (\text{Abs. stroke} + E)$ |
| 80 | $10,72 + 0,0070 \times (\text{Abs. stroke} + E)$ | $5,66 + 0,0070 \times (\text{Abs. stroke} + E)$ |
| 100 | $13,42 + 0,0070 \times (\text{Abs. stroke} + E)$ | $6,42 + 0,0070 \times (\text{Abs. stroke} + E)$ |

* The moved mass of GUH is already considered in the equation for calculating the mass of GUH m_{GUH}

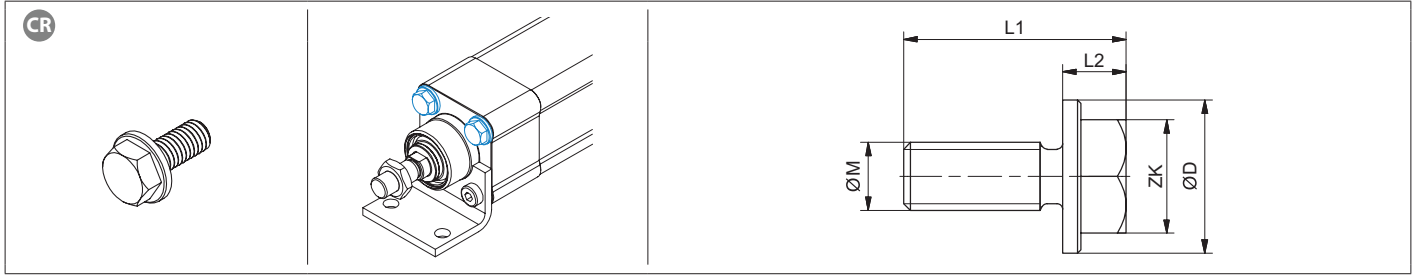
E Extended piston rod [mm]

| PNCE | L1 | L2 | L3 | L4 | L5 | L6 | L7 | L8 | L9 | L10 | L11 | L12 | L13 | L14 | L15 | L16 |
|------|------|----|-----|-----|-----|------|------|----|------|------|-----|-----|-----|------|-----|-----|
| Size | [mm] | | | | | | | | | | | | | | | |
| 32 | 177 | 37 | 61 | 125 | 64 | 32,5 | 32,5 | 12 | 6,5 | 32,5 | 78 | 90 | 97 | 32,5 | 45 | 49 |
| 40 | 192 | 37 | 69 | 139 | 74 | 38 | 38 | 15 | 6,5 | 38 | 84 | 110 | 115 | 38 | 54 | 58 |
| 50 | 205 | 38 | 85 | 148 | 89 | 46,5 | 46,5 | 15 | 8,5 | 46,5 | 100 | 130 | 137 | 46,5 | 63 | 69 |
| 63 | 237 | 38 | 100 | 182 | 88 | 56,5 | 56,5 | 15 | 8,5 | 56,5 | 105 | 145 | 152 | 56,5 | 79 | 85 |
| 80 | 280 | 42 | 130 | 215 | 110 | 72 | 72 | 20 | 10,5 | 72 | 130 | 180 | 189 | 72 | 99 | 105 |
| 100 | 280 | 37 | 150 | 220 | 115 | 89 | 89 | 20 | 10,5 | 89 | 150 | 200 | 213 | 89 | 120 | 129 |

| t | L17 | L18 | L19 | L20 | L21 | L22 | ØD1 | ØD2 | ØD3 | ØD4 | ØD5 × l (H7) | ØM1 | ØM2 | ØM3 | CH |
|------|------|-----|-----|-----|-----|-----|-----|-----|-----|------|--------------|--------|-----|----------|----|
| Size | [mm] | | | | | | | | | | | | | | |
| 32 | 4,3 | 76 | 17 | 74 | 31 | 18 | 12 | 30 | 6,5 | 10,5 | 6×6 | M6×12 | M6 | M10×1,25 | 15 |
| 40 | 11 | 81 | 21 | 87 | 36 | 21 | 16 | 35 | 6,5 | 10,5 | 6×10 | M6×12 | M6 | M12×1,25 | 15 |
| 50 | 18,5 | 78 | 26 | 104 | 45 | 24 | 20 | 40 | 8,5 | 13,5 | 6×10 | M8×16 | M8 | M16×1,5 | 22 |
| 63 | 15,3 | 111 | 26 | 119 | 45 | 24 | 20 | 45 | 8,5 | 13,5 | 6×10 | M8×16 | M8 | M16×1,5 | 22 |
| 80 | 21 | 128 | 34 | 148 | 56 | 31 | 25 | 60 | 11 | 17 | 6×10 | M10×18 | M10 | M20×1,5 | 27 |
| 100 | 24,5 | 128 | 39 | 172 | 56 | 31 | 25 | 70 | 11 | 17 | 6×10 | M10×18 | M10 | M20×1,5 | 27 |

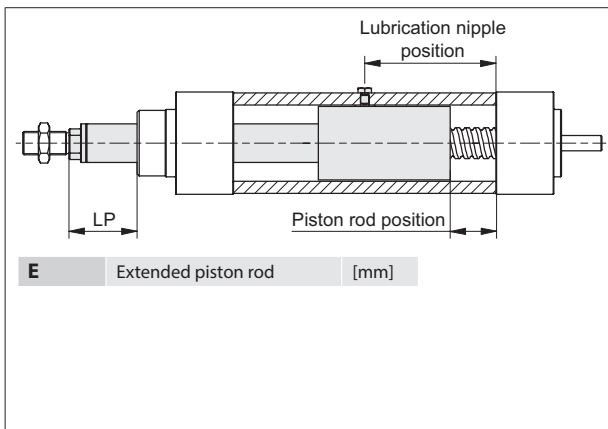
Blanking screws (Material: stainless steel AISI 304)

i Set contains 4 pcs



| Blanking screw | | ØM | L1 | L2 | ØD | ZK |
|----------------|--------------|------|------|-----|------|----|
| Tip / Type | Code | [mm] | | | | |
| M6 | 69156 | M6 | 19,5 | 5,5 | 12,8 | 10 |
| M8 | 69157 | M8 | 24 | 8 | 17 | 13 |
| M10 | 82901 | M10 | 24,5 | 8,5 | 19,3 | 15 |

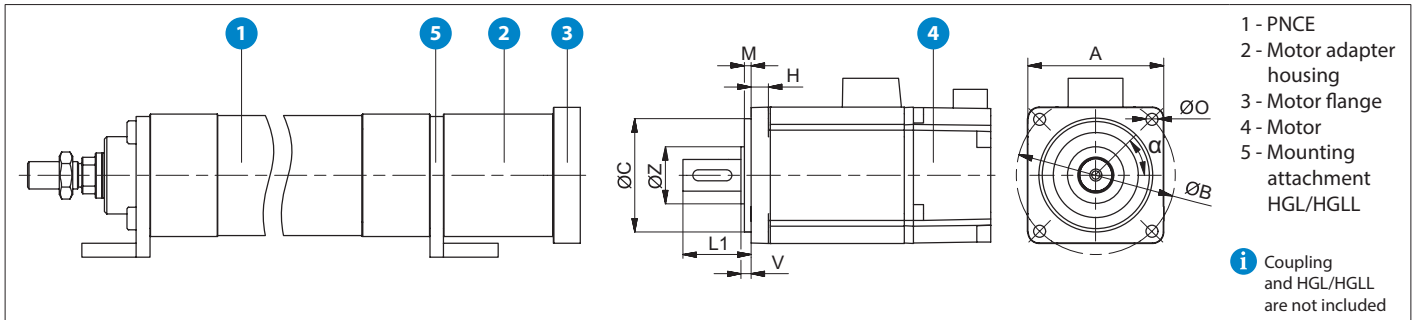
LUBRICATION POSITION



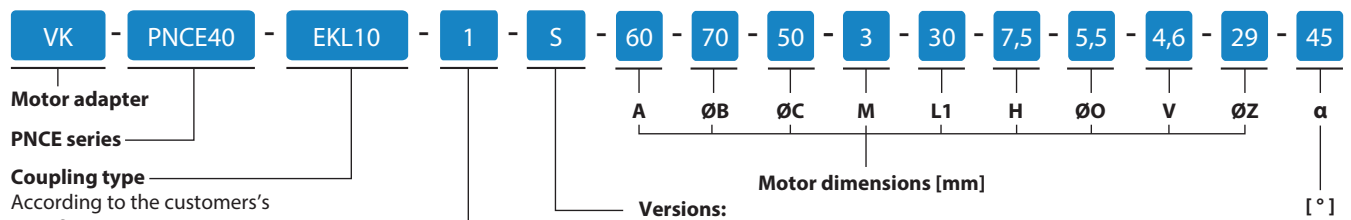
| PNCE | Ball screw d×l [mm] | Lubrication nipple position (±0,2) [mm] | Piston rod position (±0,5) [mm] | LP (±0,5) [mm] |
|------------|---------------------------|---|---------------------------------------|----------------------------|
| 32 | 12×5, 12×10 | Abs. stroke / 2 + 38,0 | Abs. stroke / 2 - 9,0 | Abs. stroke / 2 + E - 1,0 |
| 40 | 16×5, 16×10, 16×16 | Abs. stroke / 2 + 42,0 | Abs. stroke / 2 - 10,5 | Abs. stroke / 2 + E - 0,5 |
| 50 | 20×5, 20×10, 20×20 | Abs. stroke / 2 + 53,5 | Abs. stroke / 2 - 22,0 | Abs. stroke / 2 + E - 10,0 |
| | 20×50 | | Abs. stroke / 2 - 5,0 | Abs. stroke / 2 + E + 7,0 |
| 63 | 25×5, 25×10 | Abs. stroke / 2 + 47,5 | Abs. stroke / 2 - 13,5 | Abs. stroke / 2 + E - 1,5 |
| | 25×25 | | Abs. stroke / 2 - 4,0 | Abs. stroke / 2 + E + 8,0 |
| 80 | 32×5, 32×10, 32×20, 32×32 | Abs. stroke / 2 + 62,0 | Abs. stroke / 2 - 27,0 | Abs. stroke / 2 + E - 12,0 |
| 100 | 40×5, 40×10, 40×20 | Abs. stroke / 2 + 70,0 | Abs. stroke / 2 - 20,0 | Abs. stroke / 2 + E - 3,0 |
| | 40×40 | | Abs. stroke / 2 + 77,5 | Abs. stroke / 2 - 27,5 |

The lubrication nipple on the aluminum profile of the electric cylinder allows easy re-lubrication of the ball screw. To achieve the lubricating position the piston rod must be moved from the end position into position (Piston rod position) shown in the table above. The same position is achieved when the distance LP is obtained.

MOTOR ADAPTER

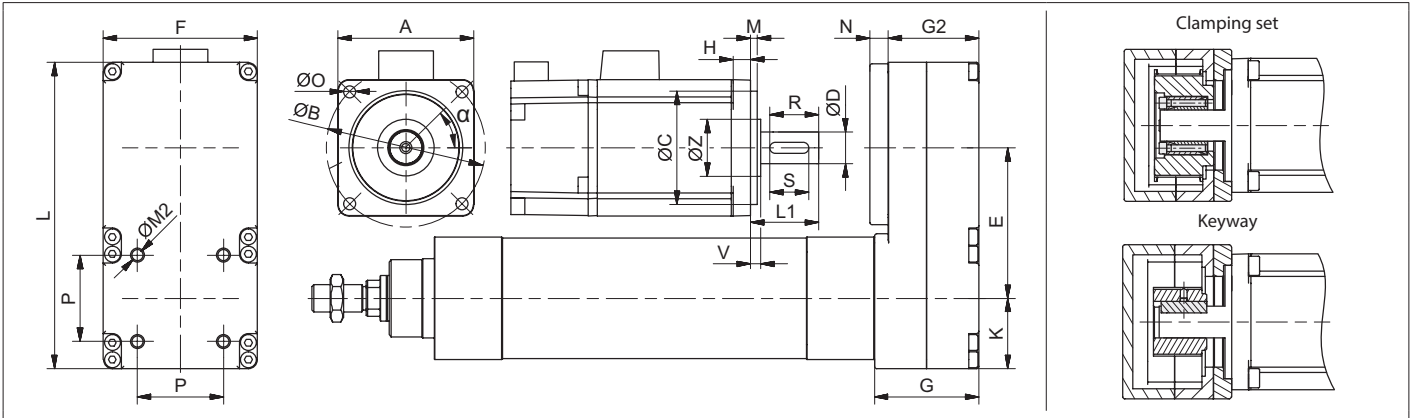


HOW TO ORDER



Versions:
• S: Standard
• IP65CR: IP65CR protection (IP65CR version is also suitable for some applications in the food industry. More information on request.)

MOTOR SIDE DRIVE WITH A TIMING BELT



HOW TO ORDER

MSD - PNCE40 - T1 - 1 - S - 60 - 70 - 50 - 3 - 30 - 14 - 7,5 - 5,5 - 20 - 20 - 4,6 - 29 - 45

Motor side drive
PNCE series
Type

Gear ratio
Versions:
• S: Standard
• IP65CR: IP65CR protection

Motor dimensions [mm]

α [°]

Technical data

| PNCE | Type | Gear ratio i | Max. drive torque $M_{p,MSD}$ [Nm] | Maximum radial load on shaft* $F_{r,MSD}$ [N] | No load torque $M_{0,MSD}$ [Nm] | Mass moment of inertia J_{MSD} [10^{-6} kg m ²] | Mass*** m_{MSD} [kg] | Motor size limits [mm] | | | | | | | | | |
|------|------|-----------------|---------------------------------------|--|------------------------------------|---|---------------------------|------------------------|-----|-----|-----|----|--------------|--------------|--------|-------|--------|
| | | | | | | | | A | ØB | L1 | | ØC | ØD | | | | |
| | | | | | | | | | | min | max | | Clamping set | | Keyway | | |
| 32 | T0 | 1 | 1 | 40 | 0,03 | 4,6 | 0,50 | 52 | 60 | ** | 20 | 32 | 36 | Clamping set | | | Keyway |
| | | 1,5 | 0,67 | 40 | 0,03 | 5,4 | | | | | | | | 0,50 | 8 | >8 | 12 |
| | T1 | 1 | 1,4 | 40 | 0,10 | 53 | 0,85 | 74 | 80 | | 25 | 38 | 52 | 19 | - | - | |
| | | 1,5 | 0,9 | 40 | 0,07 | 31 | | | | | | | | 0,72 | 10 | >10 | 14 |
| 40 | T1 | 1 | 3 | 80 | 0,10 | 62 | 0,92 | 74 | 80 | ** | 25 | 42 | 52 | 19 | - | - | |
| | | 1,5 | 2 | 80 | 0,07 | 44 | | | | | | | | 0,79 | 10 | >10 | 14 |
| | T2 | 1 | 4 | 80 | 0,27 | 288 | 1,66 | 95 | 110 | | 30 | 52 | 75 | 28 | - | - | |
| | | 1,5 | 2,6 | 80 | 0,18 | 200 | | | | | | | | 1,39 | 16 | >16 | 24 |
| 50 | T1 | 1 | 9 | 170 | 0,27 | 363 | 1,76 | 95 | 110 | ** | 30 | 52 | 75 | 28 | - | - | |
| | | 1,5 | 6 | 170 | 0,18 | 245 | | | | | | | | 1,48 | 16 | >16 | 24 |
| | T2 | 1 | 9 | 205 | 0,30 | 928 | 3,63 | 122 | 140 | | 35 | 62 | 100 | 35 | - | - | |
| | | 2 | 4,5 | 205 | 0,15 | 559 | | | | | | | | 3,06 | 15 | >15 | 22 |
| 63 | T1 | 1 | 21 | 500 | 0,34 | 1041 | 3,72 | 122 | 140 | ** | 35 | 62 | 100 | 35 | - | - | |
| | | 2 | 8,9 | 400 | 0,17 | 616 | | | | | | | | 3,10 | 95 | >15 | 22 |
| | T2 | 1 | 24 | 500 | 0,34 | 1008 | 3,72 | 122 | 140 | | 45 | 99 | 145 | 40 | - | - | |
| | | 2 | 10 | 400 | 0,17 | 575 | | | | | | | | 3,30 | 130 | >25,4 | 38 |
| 80 | T1 | 1 | 24 | 500 | 0,34 | 1008 | 3,72 | 122 | 140 | ** | 35 | 68 | 100 | 35 | - | - | |
| | | 2 | 10 | 400 | 0,17 | 575 | | | | | | | | 3,30 | 95 | >15 | 22 |
| | T2 | 1 | 48 | 500 | 0,37 | 6000 | 9,30 | 160 | 195 | | 45 | 99 | 145 | 40 | - | - | |
| | | 2 | 24 | 500 | 0,18 | 4145 | | | | | | | | 8,60 | 130 | >25,4 | 38 |
| 100 | T1 | 1 | 110 | 1000 | 0,4 | 6181 | 9,40 | 160 | 195 | ** | 45 | 99 | 145 | 40 | - | - | |
| | | 2 | 50 | 1000 | 0,2 | 4333 | | | | | | | | 8,80 | 130 | >25,4 | 38 |

* This is the load which is linearly dependent on the maximum drive torque $M_{p,MSD}$ and is generated by the correct pretension of the belt. This load needs to be reduced in accordance with the capabilities of the motor.

** Minimum dimension L1 depends on the size of particular clamping set. Values can be found on the bottom table on page 31.

*** This is an average value. It could differ depending to the motor dimensions.

Dimensions

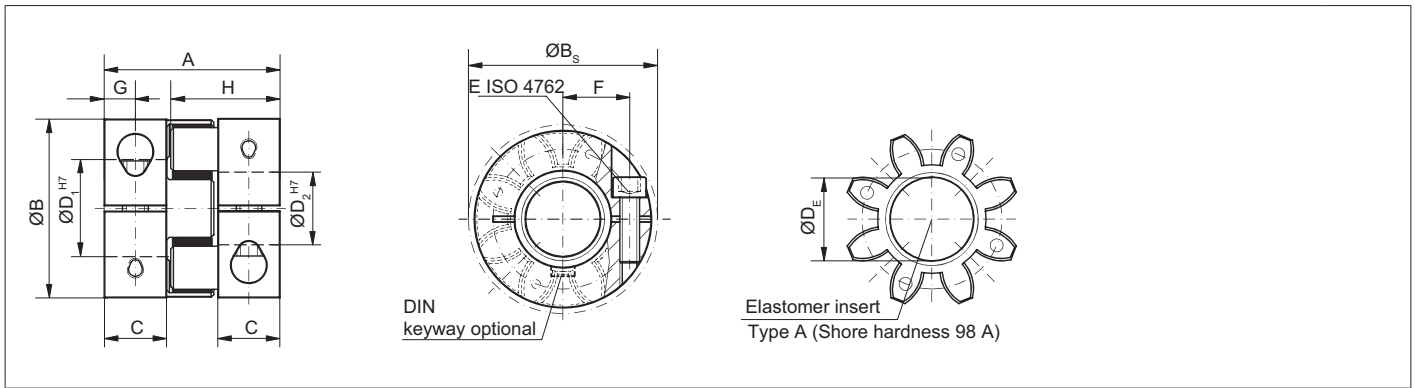
| PNCE | Type | Gear ratio | E (±0,5) | F | G | G2 | N * | K | L | P | ØM2 |
|------|------|------------|----------|-----|-----|----|-----|------|-----|------|--------|
| | | i | [mm] | | | | | | | | |
| 32 | T0 | 1 | 58,5 | 52 | 39 | 33 | 6 | 26 | 113 | 32,5 | M6×8,5 |
| | | 1,5 | 59 | | | | | | | | |
| | T1 | 1 | 65 | 68 | 42 | 36 | 8 | 31 | 135 | 32,5 | M6×8,5 |
| | | 1,5 | 64,5 | | | | | | | | |
| 40 | T1 | 1 | 65 | 68 | 46 | 40 | 8 | 31 | 135 | 38 | M6×8,5 |
| | | 1,5 | 64,5 | | | | | | | | |
| | T2 | 1 | 82,5 | 89 | 57 | 51 | 8 | 42 | 174 | 38 | M6×8,5 |
| | | 1,5 | 81,7 | | | | | | | | |
| 50 | T1 | 1 | 82,5 | 89 | 57 | 51 | 8 | 42 | 174 | 46,5 | M8×9 |
| | | 1,5 | 81,7 | | | | | | | | |
| | T2 | 1 | 120 | 116 | 66 | 60 | 10 | 49,5 | 239 | 46,5 | M8×9 |
| | | 2 | 125,8 | | | | | | | | |
| 63 | T1 | 1 | 120 | 116 | 66 | 60 | 10 | 49,5 | 239 | 56,5 | M8×10 |
| | | 2 | 125,8 | | | | | | | | |
| 80 | T1 | 1 | 120 | 116 | 77 | 67 | 10 | 49,5 | 239 | 72 | M10×17 |
| | | 2 | 125,8 | | | | | | | | |
| | T2 | 1 | 155 | 160 | 102 | 94 | 15 | 77 | 317 | 72 | M10×17 |
| | | 2 | 151,6 | | | | | | | | |
| 100 | T1 | 1 | 155 | 160 | 102 | 94 | 15 | 77 | 317 | 89 | M10×17 |
| | | 2 | 151,6 | | | | | | | | |

* This is a standard value. It could differ depending to the motor dimensions M and L1

Minimum dimension L1 [mm] depends on the motor shafts diameter ØD

| PNCE | Type | Gear ratio | ØD [mm] | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|------|------|------------|---------|----|----|----|------|----|----|----|------|----|----|----|----|----|----|----|----|----|----|----|----|----|------|----|----|----|----|----|----|
| | | | i | 4 | 5 | 6 | 6,35 | 7 | 8 | 9 | 9,53 | 10 | 11 | 12 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 22 | 24 | 25 | 25,4 | 28 | 30 | 32 | 35 | 38 | 40 |
| 32 | T0 | 1 | 17 | 17 | 17 | 17 | 17 | 17 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | | 1,5 | 17 | 17 | 17 | 17 | 20 | 20 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | T1 | 1 | - | - | 17 | 17 | 17 | 17 | 18 | 18 | 18 | 18 | 18 | 22 | 22 | 22 | 25 | 25 | 25 | - | - | - | - | - | - | - | - | - | - | - | - |
| | | 1,5 | - | - | 17 | 17 | 17 | 17 | 18 | 18 | 18 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 40 | T1 | 1 | - | - | 17 | 17 | 17 | 17 | 18 | 18 | 18 | 18 | 18 | 22 | 22 | 22 | 25 | 25 | 25 | - | - | - | - | - | - | - | - | - | - | - | - |
| | | 1,5 | - | - | 17 | 17 | 17 | 17 | 18 | 18 | 18 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | T2 | 1 | - | - | 18 | 18 | 18 | 18 | 20 | 20 | 20 | 21 | 21 | 25 | 25 | 25 | 28 | 28 | 28 | 28 | 28 | 28 | 32 | 32 | 32 | 32 | - | - | - | - | - |
| | | 1,5 | - | - | 18 | 18 | 18 | 18 | 20 | 20 | 20 | 21 | 21 | 25 | 25 | 25 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 50 | T1 | 1 | - | - | - | - | 18 | 20 | 20 | 20 | 21 | 21 | 25 | 25 | 25 | 28 | 28 | 28 | 28 | 28 | 28 | 32 | 32 | 32 | 32 | - | - | - | - | - | - |
| | | 1,5 | - | - | - | - | 18 | 18 | 20 | 20 | 20 | 21 | 21 | 25 | 25 | 25 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| | T2 | 1 | - | - | - | - | 22 | 23 | 23 | 23 | 23 | 23 | 27 | 27 | 27 | 30 | 30 | 30 | 30 | 30 | 30 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 37 | - | - |
| | | 2 | - | - | 22 | 22 | 22 | 22 | 23 | 23 | 23 | 23 | 27 | 27 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| 63 | T1 | 1 | - | - | - | - | - | - | - | - | - | - | 27 | 27 | 27 | 30 | 30 | 30 | 30 | 30 | 30 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 37 | - | - |
| | | 2 | - | - | - | - | 22 | 23 | 23 | 23 | 23 | 23 | 27 | 27 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| 80 | T1 | 1 | - | - | - | - | - | - | - | - | - | - | 27 | 27 | 27 | 30 | 30 | 30 | 30 | 30 | 30 | 34 | 34 | 34 | 34 | 34 | 34 | 34 | 37 | - | - |
| | | 2 | - | - | - | - | 22 | 23 | 23 | 23 | 23 | 23 | 27 | 27 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| | T2 | 1 | - | - | - | - | - | - | - | - | - | - | - | - | 32 | 35 | 35 | 35 | 35 | 35 | 35 | 39 | 39 | 39 | 39 | 39 | 39 | 39 | 42 | 42 | 42 |
| | | 2 | - | - | - | - | - | - | - | - | - | - | - | 32 | 32 | 32 | 35 | 35 | 35 | 35 | 35 | 39 | 39 | 39 | 39 | - | - | - | - | - | |
| 100 | T1 | 1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | 35 | 35 | 39 | 39 | 39 | 39 | 39 | 39 | 39 | 39 | 42 | 42 | 42 |
| | | 2 | - | - | - | - | - | - | - | - | - | - | - | - | 32 | 35 | 35 | 35 | 35 | 35 | 39 | 39 | 39 | 39 | - | - | - | - | - | | |

COUPLINGS



| EKL | | | 5 | 10 | 20 | 60 | 150 |
|---|------------------|-----------|--------|-------|-------|-------|-------|
| Rated torque | [Nm] | T_{KN} | 9 | 12,5 | 17 | 60 | 160 |
| Max. torque* | [Nm] | T_{MAX} | 18 | 25 | 34 | 120 | 320 |
| Overall length | [mm] | A | 26 | 32 | 50 | 58 | 62 |
| Outside diameter | [mm] | B | 25 | 32 | 42 | 56 | 66,5 |
| Outside diameter with screw head | [mm] | B_s | 25 | 32 | 44,5 | 57 | 68 |
| Mounting length | [mm] | C | 8 | 10,3 | 17 | 20 | 21 |
| Inside diameter range H7 | [mm] | $D_{1/2}$ | 4-12,7 | 4-16 | 8-25 | 12-32 | 19-36 |
| Inside diameter of the elastomer | [mm] | D_E | 10,2 | 14,2 | 19,2 | 26,2 | 29,2 |
| Clamping screw (ISO 4752) | | E | M3 | M4 | M5 | M6 | M8 |
| Tightening torque of the clamping screw | [Nm] | E | 2 | 4 | 8 | 15 | 35 |
| Distance between the centres | [mm] | F | 8 | 10,5 | 15,5 | 21 | 24 |
| Distance | [mm] | G | 4 | 5 | 8,5 | 10 | 11 |
| Hub length | [mm] | H | 16,7 | 20,7 | 31 | 36 | 39 |
| Moment of inertia per hub | $[10^{-3}kgm^2]$ | $J_{1/2}$ | 0,002 | 0,003 | 0,01 | 0,04 | 0,08 |
| Approximate weight | [kg] | | 0,02 | 0,05 | 0,12 | 0,3 | 0,5 |
| Speed standard | $[min^{-1}]$ | | 15000 | 13000 | 12500 | 11000 | 10000 |

* The maximum transmittable torque of the clamping hub depends on the bore diameter and is limited to the size of the PNCE

Maximum transmittable and drive torque $M_{p,c}$ [Nm] depends on the bore diameter

| EKL | Ø4 | Ø5 | Ø8 | Ø16 | Ø19 | Ø25 | Ø30 | Ø32 | Ø35 |
|-----|-----|----|----|-----|-----|-----|-----|-----|-----|
| 5 | 1,5 | 2 | 8 | - | - | - | - | - | - |
| 10 | - | 4 | 12 | 32 | - | - | - | - | - |
| 20 | - | - | 20 | 35 | 45 | 60 | - | - | - |
| 60 | - | - | - | 50 | 80 | 100 | 110 | 120 | - |
| 150 | - | - | - | - | 120 | 160 | 180 | 200 | 220 |

Maximum transmittable and drive torque $M_{p,c}$ [Nm] limited to the size of the PNCE

| EKL | PNCE 32 | PNCE 40 | PNCE 50 | PNCE 63 | PNCE 80 | PNCE 100 |
|-----|---------|---------|---------|---------|---------|----------|
| 5 | 2,2 | - | - | - | - | - |
| 10 | 2,2 | 5,3 | 13,9 | - | - | - |
| 20 | - | - | 13,9 | 33,1 | - | - |
| 60 | - | - | - | 35,1 | 60,7 | - |
| 150 | - | - | - | - | - | 160 |

HOW TO ORDER

COUPLING - EKL10 - A - F8 - F14PFN

Coupling

Coupling type/size:
• 5 • 10 • 20 • 60 • 150

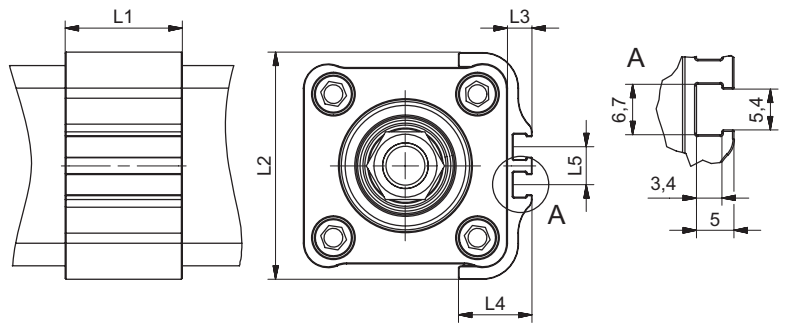
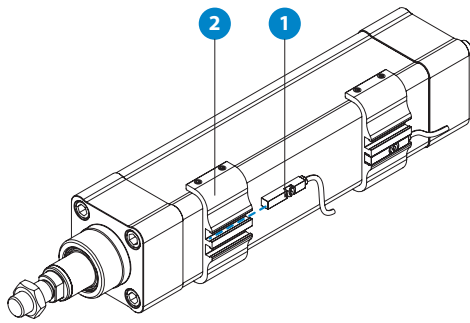
Elastomer insert type:
• A

Hole diameter

Option:

- PFN: with keyway
- Leave blank: without keyway

MAGNETIC FIELD SENSORS



1 - Magnetic field sensor
2 - Sensor holder

i Mounting of the Magnetic field sensor on PNCE requires a HPNCE sensor holder

| PNCE | L1 | L2 | L3 | L4 | L5 |
|------|------|-------|-----|------|----|
| | [mm] | | | | |
| 32 | 30 | 53,0 | 6,5 | 19,5 | 10 |
| 40 | 30 | 60,0 | 6,5 | 19,5 | 10 |
| 50 | 30 | 71,0 | 6,5 | 22,5 | 10 |
| 63 | 30 | 81,0 | 6,5 | 22,5 | 10 |
| 80 | 30 | 98,3 | 6,0 | 25,0 | 10 |
| 100 | 30 | 115,4 | 6,0 | 25,0 | 10 |

| SMT-65TP-K NO / NC | Code | Type | Compatibility | |
|--------------------|-------|--|---------------|--|
| | 68997 | HPNCE sensor holder | PNCE 32 | |
| | 68998 | | PNCE 40 | |
| | 68999 | | PNCE 50 | |
| | 69000 | | PNCE 63 | |
| | 79053 | | PNCE 80 | |
| | 79054 | | PNCE 100 | |
| | 74073 | SMT-65TP-K NC | PNCE series | |
| | 74074 | SMT-65TP-K NO | PNCE series | |
| | 8146 | Extension cable length 2m - Straight connector | | |
| | 8147 | Extension cable length 5m - Straight connector | | |
| | 9017 | Extension cable length 2m - Angled connector | | |
| | 9019 | Extension cable length 5m - Angled connector | | |

| TECHNICAL DATA | SMT-65TP-K NC | SMT-65TP-K NO |
|-----------------------|------------------------|------------------------|
| Sensor Type | GMR sensor | GMR sensor |
| Switching function | NC | NO |
| Output | PNP | PNP |
| Operating voltage | 10 ~ 28 V DC | 10 ~ 28 V DC |
| Switching Current | 200 mA max. | 200 mA max. |
| Power rating | 5,5 W max. | 5,5 W max. |
| Voltage Drop | 1,5 V / 200mA max. | 1,5 V / 200mA max. |
| Current Consumption | 10mA / 24 V max. | 10mA / 24 V max. |
| Switching Frequency | 1000 Hz | 1000 Hz |
| Ambient temperature | -10 ~ +70°C | -10 ~ +70°C |
| Shock/Vibration | 50 G / 9 G | 50 G / 9 G |
| Protection class | IP67 | IP67 |
| LED indicator | Yellow | Yellow |
| Electrical connection | M8, 3-pin | M8, 3-pin |
| Cable material length | PU - 0,3m | PU - 0,3m |
| Extension cable | Energy chain compliant | Energy chain compliant |

LOAD TORQUE CALCULATION AND DETERMINATION OF MAXIMUM AXIAL LOAD ON THE PNCE CYLINDER

Load torque

The load torque is a function of an applied axial load on the PNCE and can be calculated as follows:

$$M_{load} = \frac{F_{axial} \times l}{2000 \times \pi \times \eta}$$

When the motor side drive (MSD) is taken into consideration:

$$M_{load} = \frac{F_{axial} \times l}{2000 \times \pi \times \eta \times i}$$

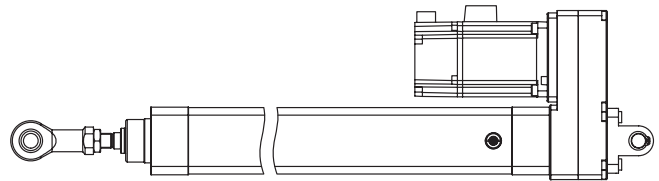
| | | |
|--------------------------|--------------------------------|------|
| M_{load} | Load torque | [Nm] |
| F_{axial} | Applied axial load on the PNCE | [N] |
| l | Ball screw lead | [mm] |
| η | Mechanical efficiency ≈ 0,9 | [-] |
| i | Gear ratio | [-] |

i It should be noted that the load torque M_{load} must never exceed the maximum drive torque M_p (or $M_{p,MSD}$ if the MSD is taken into consideration)

Maximum axial load on the PNCE

Application conditions example:

- PNCE 40 with ball screw 16x5
- Absolute stroke = 500 mm
- Extended piston rod E = 0 mm
- Travel speed $v_{max} = 0,2$ m/s
- Using motor side drive type T1 with a gear ratio $i = 1,5$
- Mounting: simple – simple mount with SGS and SBG attachment



Using the diagram of the maximum axial loading as a function of the absolute stroke, the maximum axial load depending on the given mounting case can be obtained as $F_{max} = 700$ N (see page 9).

Using the diagram of the maximum axial loading as a function of the travel speed, the maximum axial load depending on the ball screw lead and absolute stroke can be obtained as $F_{max} = 4700$ N (see page 7).

For a selected motor side drive, the maximum drive torque $M_{p,MSD} = 2$ Nm can be found (technical data table, see page 30). Using the equation for the load torque calculation when the motor side drive is taken into consideration, the maximum axial load $F_{max} = 3392$ N can be calculated.

For selected mounting attachments, the maximum axial load is limited to the maximum axial load of the PNCE, i.e. $F_{max} = 6020$ N (see table on page 19/24).

Finally, for this application example, the maximum axial load on the PNCE can be determined, i.e. $F_{max} = 700$ N. This is the smallest value of all the values obtained in the previous steps.

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